The Builder.

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The late Mr. George Godwin.

ANY members of the architectural profession will sympathise with us in the regret with which we have to commemorate, what all our readers already know from the daily papers, the death of Mr. George Godwin, which took place on Friday last, January 27th, at his residence in Cromwell-place. But to ourselves the event has a significance quite apart from what it can have to any others beyond the circle of Mr. Godwin's own family and near relatives. His death marks the close of the first generation, so to speak, of this journal; he conducted the *Builder* from two years after its commencement, and for nearly forty years it might be said not only that he edited the journal which he had made a success through his own energy and ability, but that he himself, in his autocratic government of his journal, really and essentially *was* the *Builder*; it was for it that he principally lived, and in it that his principal interests and efforts were centred, as far as his working life was concerned.

Mr. Godwin was born on January 28, 1815, at Brompton, in which neighbourhood he spent his whole life,—a life begun, as he used to remark, when Brompton was a rural suburb, and closed near one corner of the endless Cromwell-road and nearly within a stone's throw of the great building for the Natural History Museum. The neighbourhood proved a suitable one enough for a resident who was at once architect, archæologist, and journalist. South Kensington, at a comparatively early period of his life, became more and more a centre of artistic work, largely of the class of artistic work intimately connected with architecture, when the South Kensington Museum made its humbler commencement under cover of what were then called the "Brompton boilers," and the galleries surrounding the Horticultural Gardens came into existence at a later period, and became the scene of various exhibitions of art and manufactures year after year.

Mr. Godwin's father was an architect, and George Godwin at an early age entered his father's office, and must there have laid the foundation of the accurate knowledge of the practical side of the profession which has always characterised him. It has been often mentioned that he obtained the first Gold Medal given by the Institute of Architects, for his Essay on Concrete; but it is not so well known that this testimony to his proficiency was gained when he was in his twenty-first year, and when the subject had been much neglected among modern architects; and when we consider that this essay, written by so young a man on a subject which at that time was coming up, practically, as a new one, is still an authority on the subject, and has only become antiquated in respect of one or two minor details as to the treatment of concrete, which a good many years of experience have modified, we must consider this as an unmistakable proof of an active and on-looking mind. Mr. Godwin gave a further proof of this early enlightenment of mind, this power of seeing the signs of the times, in his spirited pamphlet published two years later, called "An Appeal to the Public on the subject of Railways"; which is an ardent and enthusiastic statement of the anticipated value of railways to the country, and an answer to the objections urged against them by cautious people of a conservative type of mind; embodying opinions which for many years back have been accepted as the plain common sense of the matter, but which, be it remembered, were published by this young writer at a time when only one or two railways had been made in England, and when the question of the social and economical advantages of the system was still strongly contested in many quarters.

The power of using the pen effectively Mr. Godwin, it will be seen, developed early; but he was from the first no mere eloquent writer, but a man of practical knowledge and insight, using his literary power to put his knowledge and opinions before others in an effective and striking manner; and though he never seems to have aimed at fine writing for its own sake, those who look through his writings will probably often be struck with his peculiarly pithy way of expressing a fact or an idea in a few words that present it in a new and forcible light.

Among Mr. Godwin's writings at the same early period were various pamphlets, and "Sessional Papers" read before the Institute of Architects, the subjects of which show to how many various matters in connexion with the profession he was turning his attention, such as "The Institution of Freemasonry," "The State of Architecture in the Provinces," "The Means employed for Raising Obelisks" (*apropos* of the elevation of the Luxor obelisk at Paris); "Ancient Architectural Remains in Lower Normandy"; "Present State of the Art of Glass-Painting in England and France"; "Present State of Cologne Cathedral"; "On Certain Marks discoverable on the Stones of various Buildings erected in the Middle Ages,' &c. This latter paper, on masons' marks which is a familiar subject to archæologists now, may be grouped with the essay on Concrete as having been a pioneer Essay on a subject which had then obtained little attention; and it has often been referred to since as a valuable repository of information on this curious branch of archæology.

The *Builder* journal was started in 1842, and it was two years later, in 1844, after it had run a not very successful course up to that time, that Mr. Godwin was appointed to take it in charge, and for some time, as we have heard him relate, he, at a very modest salary, practically pretty nearly wrote the whole paper; drawing round him, however, by degrees, an increasing number of able contributors on various special subjects,—some of them contributors in the usual journalistic sense; others, well known in the architectural world, who made his columns the medium for the expression of their knowledge and critical opinions in signed letters, often of great interest and value. The paper was a much smaller one in bulk then, but the amount and interest of the information on the doings of the architectural, engineering, and building world of that day which is to be found in these early numbers of the journal would probably surprise readers who have the opportunity and curiosity to look so far back. He had the whole field to himself then, but the success with which the enterprise was carried on, even under those favourable conditions, says a great deal for his ability and unremitting attention.

Although Mr. Godwin had been Editor of the *Builder* for nearly forty years at the time of his retirement in October, 1883, it is not known to many that he was our third Editor. The founder of the journal, and its Editor for a few months, was the late Mr. Joseph Aloysius Hansom, architect of the large Church of St. Philip Neri, at Arundel, built for the Duke of Norfolk, and of many other buildings, of which we gave a list in a memoir of Mr. Hansom at the time of his death in 1882.* Mr. Hansom was the inventor of the "patent safety cab," by means of which his name has become a household word to many who little dream of the connexion of a "Hansom" with the *Builder*. Mr. Hansom was succeeded in the editorial chair

* See *Builder*, July 3, 1882, pp. 43, 44.

by Mr. Alfred Bartholomew, whose name is well known in connexion with what was for many years a standard work on "Specifications." Mr. Bartholomew retired from the editorship after holding it for little more than a year,* towards the end of 1844, when he was succeeded by Mr. Godwin, of whom, as we have previously indicated, it is only just to say that he "made" the paper. It may be of interest to mention here that the last number for which Mr. Godwin was editorially responsible was that for October 13, 1883. We may add (as we have reason to know that there have been misapprehensions on that point) that up to the very day of his resignation, Mr. Godwin, and he alone, was fully and entirely responsible for everything in the conduct and contents of the *Builder*, and that he never delegated his authority, either directly or indirectly, to any one else.

At the present moment we may be allowed to speak of his work on this journal from the standpoint of outsiders, and to bear testimony from our own knowledge and observation for a good while back as to his remarkably conscientious care over this work. There could hardly have been, even in later years and when his health was not what it had been in earlier days, a more careful editor or one more exacting in regard to his own work as well as that of his collaborators. Whatever statement of fact appeared in his columns his readers might be sure was as correct as he could secure; and he spared no pains or trouble over the smallest details. It is not, we believe, quite correct, as we have seen stated recently, that he never gave himself a week's holiday from the work of the paper; but as far as we know the only exception worth speaking of was that occasioned by a few weeks' tour on the Continent a good many years ago. In later days, when his friends occasionally urged him to give himself a short holiday for the sake of his health, his answer was, "something will be sure to go wrong if I go away"; and this idea was sufficient to keep him at his post even under the pressure of serious ill-health. For many years back he carried on the editorial work at his own house mainly, first at No. 24, Alexander-square, in the Fulham-road, and for a good many years after that at his house at No. 6, Cromwell-place. There he was regularly to be found all the year round, in the quiet study at the back of the house, surrounded by books and papers, until about one o'clock in the day (his day began early), by those who wished to see him on the business of the paper, and there he collected by degrees his valuable and curious assortment of "historic chairs," as he called them,—chairs which had been the property of eminent owners, beginning from Shakespeare, who was represented by an old square-cut wooden chair, the pedigree of which was, we believe, perfectly orthodox and satisfactory. In other chairs sat the ghosts of Byron, Pope, Gay, Lady Morgan, Theodore Hook, Thackeray, &c, one only representing a happily still living owner, the eminent painter who was for a long time his next-door neighbour in Cromwell-place, and whose long-used painting-chair came there not in the way of purchase, but as a gift of friendship.

There is no part of Mr. Godwin's work which was more noteworthy, whether in regard to the impulse which prompted it or the manner in which it was carried out, than that which had for its object the amelioration of the sanitary condition of the dwellings of the poor in town and country, and none to which he looked back with more satisfaction himself. Much has been said on this subject recently, and many who have taken a considerable part in the renewed attention which has been called to the subject of late would probably be surprised to find how completely all they had to urge had been anticipated in Mr. Godwin's works, "London Shadows: A Glance at the Homes of the Thousands" (1854); "Town Swamps and Social Bridges" (1859); and "Another Blow for Life" (1864). He saw, along with Chadwick and others, that the amelioration of the houses of the poorer classes was one of the great wants of the day; and assisted in directing attention to it in his own forcible and original fashion. He "went slumming," as *Punch* has put it, at a time when it had not become a fashionable amusement; he saw things for himself, and described them not only in words but in characteristic sketches with caustic comments: "The cellar dwelling,"—"light and air for the cellar dwelling," to wit, a small strip of window about 4 in. above the pavement level; "a London dairy," a section showing the cows underneath in a cellar with no ventilation, and the family room above; "Sweetening the air in Essex," a village scene, with a horsepond in the foreground into which all the houses drain; "Sickness in the washhouse, and why?" a section showing a cesspool just under the floor, &c., &c. Mr. Pridgin Teale has shown the same thing in the same sarcastic way, and with more elaborately coloured sections, in his admirable little book, "Dangers to Health"; but he is only repeating, really, what Mr. Godwin did many years before. This work was not thrown away, we may be sure; but the credit of such efforts has gone more to the later and less to earlier workers in this field; though we may assume that Mr. Godwin's appointment on the Royal Commission for considering the question of the Housing of the Working Classes (at the meetings of which he was one of the most assiduous attendants) was made partly in recognition of his former labours in connexion with this subject.

A small book, published about the same time as the others we have been referring to, deserves mention, namely, that entitled "History in Ruins" (1853), an essay on the main points in the history of architecture, for general readers, put into the form of letters. This is an exceedingly clear and well-written book of the kind, and, like most of Mr. Godwin's writings in connexion with architecture, is characterised by a very original and forcible manner of putting things; and some of the ideas about architectural style and history contained in it, though commonplaces with architectural writers now, were by no means so at that time. Among other things, he anticipated in this book the spirit of much of what has been said, and which it has become the fashion to say of late, in regard to the beautifying of daily life, and a passage in reference to this subject may be quoted. He had been speaking of the homes of the Greeks, and of their sculptural decoration:—

> "I could almost wish that there was a memorial of the mythic Apollo before every home to-day,—Apollo, the representative of Music and Eloquence and Poetry. What do we find in too many of our houses? Not a picture, not a 'thing of beauty' of any description; often not a thought of it. Even where thrift and carefulness reign, there sometimes shines no joy, and the clay-bound spirit never reaches its right elevation: the occupants groan instead of living. But there is a Bible on the window-sill, you will say; we want not Apollo. True, we have deeper consolation, purer teaching, higher incitement than the Greek; but 'the Book' scarcely requires white ceilings, drab walls, and bare, gloomy looks, constant care; lamentations for ills which are not, and never may be; thoughts only for the animal life; a shutting out of the light and refusal to be joyous. If you do not know of such houses, you are lucky in your friends.
>
> Let us try and induce them to put up Apollo in the courtyard."

Mr. Godwin was usually credited, we believe, especially by the younger generation of the profession who knew less of his previous career, with being an architectural journalist and writer only; he was, however, a thoroughly practical architect, though he gradually drifted into journalism entirely as time went on; but in his earlier days he designed and carried out various buildings, of which some mention will be found at the close of this article, and the grand church of St. Mary Redcliff, at Bristol, was for many years under his care as restoring architect, and it was under his supervision that the spire was completed. He was also for a considerable time District Surveyor for South Islington.

Mr. Godwin took an active interest in the affairs of the Art Union of London, and also in the Royal Literary Fund, of which he was a Treasurer, and in the Newspaper Press Fund. He was a Fellow of the Society of Antiquaries and a Fellow of the Royal Society, and in 1881 he received the Gold Medal of the Royal Institute of British Architects, of which body he had been a Vice-President. In old days he was, we believe, a frequent attendant and speaker at the meetings of the Institute; of late years he attended these little, but he evinced his interest in the Institute and in the promotion of architectural education in the most practical manner, by founding a Scholarship or Bursary in connexion with the Institute, known as the "Godwin Bursary," the holder of which was to study and report upon the architectural work and professional practice of other countries. The institution of a scholarship for this kind of object was entirely in accordance with Mr. Godwin's practical character. He saw that the prizes at the Institute were given almost entirely for artistic work and drawing (the Grissell Medal being the only prize for purely practical and scientific work), and that the study of ancient buildings was encouraged rather to the exclusion of modern architecture, and he accordingly undertook to found a prize which should do something towards throwing the weight into the other and previously rather neglected scale.

The portrait which we give with this number is a very good likeness of Mr. Godwin as he was in the later years of his life, though he has a much more quiescent appearance and manner there than he used to have in his earlier years. He was an effective and fluent public speaker, as many will remember, and a very amusing talker and narrator of stories, flavoured with a little of what may be called good-humoured cynicism; and enjoyed other people's stories in turn. It might be said of him, perhaps, that there were really two Godwins,—Godwin the man, and Godwin the editor. In the latter character, and acting in the interests of his journal, he was prepared to do battle with all comers, and it was war to the knife with any one who menaced the interests of the *Builder* in any way. But as a journalist he was exceedingly and most carefully unwilling to give annoyance or pain to any one; and we believe that what he said at a large "Conference" dinner some years ago, when called upon to respond for "the Press," that "nothing had ever been said in the *Builder* with the desire or wish to hurt any one's feelings," was strictly true. Indeed, we heard him say once that his rule was, "if there is nothing good to be said about a thing, say nothing about it": a precept which may have been carried too far sometimes, seeing that criticism is one function of journalism. One of the few occasions on which he departed from this rule was in admitting some really very gently and reluctantly expressed opinions adverse to the adoption of Mr. Street's design for the Law Courts, for which, however, their architect did not readily forgive him, though they were reconciled before the death of Street, to whose lot it fell, as President (unhappily for too short a period) of the Institute, to present Mr. Godwin with the Gold Medal, which he did in very friendly terms, expressing at the same time his sense of the service which Mr. Godwin had done to the profession in "avoiding the pitfall" (as he expressed it) of making his journal a mere professional organ, and rendering it as far as possible a paper of general interest, and in this way a medium of communication between the architectural profession and the outside public.

Apart from his editorial office, in the exercise of which he was very unassailable, and was not to be turned from any position which he had deliberately taken up, Mr. Godwin was a very kind-hearted man, not only in a sentimental but in a practical sense, and a pleasant and entertaining companion; both a genial host and a genial guest, as many persons can testify. Among his principal interests apart from architecture was the theatre, at which he was a constant attendant when anything worth seeing was to be seen, and in regard to which he was an able and clear-sighted critic in conversation, though he never, we believe, exercised the function of dramatic critic in any other sense. He was, however, connected

* Mr. Bartholomew died January 2, 1845. See *Builder* for that year, pp. 23, 29.

with the theatre in another sense in the early part of his professional life, as he designed the scenery for and superintended the mounting of some of Charles Kean's elaborate Shakspearean "revivals." Mr. Godwin's habit of going straight to the real point of a matter in discussion made his contribution to any argument, whether in private conversation or public discussion, often unexpectedly practical and effective. On one occasion, during one of the annual meetings of the Archæological Association, some discussion arose at an evening meeting as to the date of a Mediæval building in the neighbourhood, which threatened to prolong itself to no very decisive end, when Mr. Godwin said, "Let us visit it to-morrow and settle the question on the spot; if we cannot settle such a thing as that from the evidence of the building, it is no use our coming here or meeting at all"; which practical suggestion was duly carried out the next morning. At a recent meeting of the Hellenic Society, when support was asked for the New School at Athens to promote the study of Greek antiquities, Mr. Godwin was the only person, or at all events the first person, to whom it occurred to ask the obvious question, which had been entirely overlooked by previous speakers, what was to be the curriculum of the School, and the position and duties and responsibilities of the students: a matter about which, oddly enough, not a word had been said by any previous "Hellenist," and on which information might perhaps have been indefinitely deferred but for his timely question. In little matters also Mr. Godwin was very methodical and logical, and had rather a contempt for those who were otherwise. We remember observing his caustic reply in his "Answers to Correspondents" (which were often exceedingly pithy) to a man who wrote and complained that his signature to a letter had been printed wrongly, and wanted it corrected, somewhat to this effect:—"We will not publish any correction of what is entirely your own fault. A man who cannot take the trouble to sign his name legibly in a letter for publication has only himself to thank for mistakes"; and a similar offender (apparently) the same week was dismissed with a curt "ditto." We found him humorously sarcastic one day over a very elaborately decorated card of admission to some public fancy ball, on which, though no space had been provided for writing any name on the card, and no such necessity hinted at, the words "not transferable" were displayed in ornamental letters at the foot. "Now, can you imagine," he said, "a whole committee of people sending out such a stupid thing as that, and not one of them noticing the blunder"?

Mr. Godwin's mental attitude in regard to the architecture of the present day was not entirely reflected in the pages of his journal, and perhaps was hardly known except to a few with whom he occasionally conversed on the subject. The opinion of a man of such keen critical judgment, and who was in a position specially favourable for observation as a spectator of the scene, may be of some interest. Briefly, we may say that his private opinion, as we have not unfrequently heard him express it, was that all the imitative architecture of modern days was in reality a thing beside the mark, but he did not consider that there was any good to be done by continually preaching a pessimist architectural gospel. A great many able men had given their professional lives and ability to revived Gothic, and he considered the movement must necessarily have its course, and that the works of those who were leaders in the movement must be judged from the standpoint they had adopted. "It is no use," he said one day, "in speaking of ——" (naming an eminent Gothic architect), "to discuss, in regard to his work, the question Gothic *v.* Classic; he is a Gothic architect; he can only be fairly judged as such." To have been continually urging a course which for the time was out of the question, he would have thought Quixotic; but no man held more strongly the view, which indeed he expressed to us only a few days before his death, that the real want in modern architecture was originality, and that the credit of producing buildings which were an accurate representation of the detail and spirit of a former architecture, though requiring much study to do it well, was a less important achievement than the public or the profession at present supposed.

Several of Mr. Godwin's works, and of those executed under the joint superintendence of himself and his brother Henry, have been illustrated in the *Builder*. We will first enumerate those carried out under his sole responsibility, in the order of their illustration. They are as follow, viz.:—The Brompton Parochial National Schools, vol. iii., p. 7; Tower of Fulham Church (as restored), vol. iv., p. 54; St. Mary's Church, Ware, Herts (restoration), vol. v., p. 615; North Porch of Redcliff Church, Bristol (restored), vol. vii., p. 7; St. Mary's Church, West Brompton, vol. vii., p. 282; Interior of Ware Church, Herts (restored), and new Font Canopy thereat, vol. viii., pp. 222–23; Interior of St. Mary's, West Brompton, and Sedilia thereat, vol. viii., pp. 498–99; Redcliff Infants' School and Residence, Pile-street, Bristol, vol. xi., pp. 248-249; North Doorway, Church of St. Mary Redcliff, Bristol (as restored), vol. xi. p. 759; Farm Buildings and Residence, Wall's Court, near Bristol, vol. xiii., pp. 342-343, 367; Pulpit, Reading-desk, Seats, Font, and Cover, Church of St. Mary Redcliff, Bristol, vol. xiv., pp. 74-75; Buildings, Stanley Farm, near Bristol, vol. xviii., p. 137; Reredos and Sedilia, St. Mary Redcliff, Bristol, vol. xxv., p. 171; and the Church of St. Mary Redcliff, Bristol, as restored (external view), vol. xxxi., p. 646.

Of works carried out in conjunction with Mr. Henry Godwin, the following were illustrated in our volumes, viz.,—Standon Church, near Ware (restored), vol. xxiii., p. 65; House, "Rockhurst," West Hoathley, Sussex, vol. xxv., pp. 276-77, 350; House, "Elmdale," Clifton Downs, Bristol, vol. xxv., pp. 764-765; Little Munden Church, Herts (restored), vol. xxvii., pp. 626-27; St. Jude's Church, Earl's Court, Kensington, vol. xxviii., p. 547, vol. xxix., pp. 366-67; and vol. xxxvii., p. 775; Redcliffe Mansions, South Kensington, vol. xxix., p. 106; and Drinking Fountain, Clifton Downs, Bristol, vol. xxx., p. 606.

The funeral took place on Thursday last in Brompton Cemetery. The chief mourners were, Mr. Sidney Godwin, Mr. Henry Godwin, and Dr. Ashton Godwin (brothers); Mr. Heron B. Verity (nephew), and several other relatives.

From the *Builder* Office there were present Mr. E. W. Cox and Mr. T. B. Fialaison (representing the Proprietors), Mr. H. H. Statham, Mr. Douglas Fourdrinier, Mr. L. J. Dessurne, and Mr. Robert Dean (formerly of the Advertisement Department). As representatives of Messrs. Wyman & Sons' printing-office (in which "house" the *Builder* has been printed from the commencement), Mr. W. H. Phillips (Overseer), and Mr. John Bate, the veteran "reader" of the paper, attended (Mr. Monro, the "printer," and other representatives of the office being unable to attend in consequence of Thursday being "Press Day").

Among a large number of Mr. Godwin's professional and other friends who were present we noticed Prof. T. Hayter Lewis, Mr. William H. White (Secretary and representative of the Royal Institute of British Architects), Mr. A. W. Blomfield, A.R.A., Sir Robert Rawlinson, K.C.B., Mr. E. B. I'Anson, M.A., Mr. S. Flint Clarkson, Mr. W. Cave Thomas, Mr. Lambton Young, Mr. Crofton Croker, Mr. G. G. Adams, F.S.A., Mr. John Leighton, Mr. Francis Hooper (Godwin Bursar for the year), Mr. F. A. Jewson, and many others.

THE LATE PRESIDENT OF THE INSTITUTE.

MR. EDWARD I'ANSON, President of the Royal Institute of British Architects, whose unexpected demise on the 30th ult. has been announced, was the eldest son of an architect and surveyor of the same name, and was born in London in Laurence Pountney-hill, on July 25th, 1812. His father was largely employed as a surveyor to estates in London and Southwark, and was first assistant to, and afterwards a partner with, Mr. David Alexander, who enjoyed at one time an extensive architectural practice in the City of London. The elder I'Anson was Surveyor to the Commissioners of Sewers for Surrey and Kent from the year 1804 to 1846, when the Commission was superseded, and under his superintendence large tracts of country in these two counties, which had for centuries been unproductive, except of miasma and disease, were converted into building land, and now form part of the metropolis. His colleagues in this important work were Joseph Gwilt and James Newman. Mr. I'Anson, in addition to his practice as a surveyor and arbitrator, designed a large number of buildings, chiefly warehouses, in Southwark, and in other places. He relinquished active practice about the year 1842, and died in 1853, aged seventy-eight.

His son Edward I'Anson, jun. (as he was called to distinguish him from his father), the subject of this notice, was educated chiefly in France at the College Henri Quatre, and at an early age was articled to his father, and afterwards passed some time in the office of Mr. John Wallen, who was at that time the principal quantity surveyor in the City, it being the practice in those days for young men to put themselves under Mr. Wallen for the purpose of acquiring a knowledge of taking out quantities. Mr. I'Anson was very proud of his attainments in this particular, and frequently referred to the experience he had obtained in Mr. Wallen's office.

On the completion of his education Mr. I'Anson made an extensive tour in France, Germany, Italy, Greece, and Turkey, and returned home in 1837, bringing with him an extensive collection of sketches and memoranda, of which he afterwards made good use. He immediately after entered into practice, and, besides assisting his father in his surveying business, he soon acquired an independent connexion as an architect, his bent being decidedly towards the artistic side of his profession. Among his earliest patrons were Sir Francis Graham Moon (who then carried on business in Birchin-lane, on the site of what is now the City Bank, and who engaged in several successful speculations with regard to land in the City), and Sir Thomas Tilson. For the former he designed the extensive block of buildings in the rear of the New Royal Exchange and in Freeman's-court, known as Royal Exchange-buildings, and the successful carrying out of this work at once raised him to the first rank among City architects.

At that time the construction of buildings to be used exclusively as offices was in its infancy, and Sir Francis Moon appears to have been one of the first to perceive the advantages that might be derived from the erection of buildings of this character. Some few isolated buildings of this kind appear to have been erected, including one at the Lombard-street end of Clement's-lane by Mr. Voysey about 1823, but they attracted no attention; and until the improvements in connexion with the approaches to London Bridge and the rebuilding of the Royal Exchange began to be effected very little had been done to provide offices suitable for the changed conditions of social life and the expansion of commerce. "There were in the City of London in my recollection, some thirty years ago," to quote from a paper read by Mr. I'Anson before the Institute of Architects in 1864, "certain houses let out in separate floors and used as offices; but these were few, and it is quite within my remembrance when merchants dwelt in the City over their counting-houses, and next to their warehouses, going to their country houses at Edmonton, Tottenham, and Hackney, when there was scarcely any practicable outlet over the river to the southward, and when the coaches and wagons from Kent put up in the High-street of the Borough of Southwark, where the great inns with the open galleries round them then existed, and where, indeed, some still remain, but are now converted to

other uses. In those days buildings erected expressly for use as offices were unknown."

Mr. I'Anson was the first to use white glazed tiles for the lining of the walls of internal areas, having employed them for that purpose at the Royal Exchange buildings, at the suggestion, as he stated with characteristic modesty, of his client, Sir Francis Moon. He built Colonial Chambers, Fenchurch-street; a large block of offices, Bell-court, Mincing-lane, for Messrs. Innes and others, and at one time appeared to have a monopoly of this description of building, in which, however, he was subsequently outdone by others who profited by his experience. These office buildings afforded but little opportunity for architectural display, the chief requirements in their construction being economy of space and an abundance of light; but an exception may be made with regard to Corn Exchange Chambers, Seething-lane, the front of which is a remarkably original and well-balanced composition, in the style of the Italian Renaissance. As specimens of Mr. I'Anson's earlier manner may be noted the front of No. 10, Pall-mall, built for Colonel Colt about 1846; a small house at the end of St. Mildred's- court, Poultry (still remaining); and a large block of buildings called Pavilion Buildings, adjoining the Pavilion, Brighton, for Mr. H. S. King.

Occasionally Mr. I'Anson appears to have been influenced by modern French architecture, as shown by the examples of the façade of Nos. 81 and 82, Lombard-street, designed for Mr. Thos. Webber, and No. 74, Lombard-street, for Messrs. Gillett, which last building has been recently destroyed. The influence was, however, only temporary, and he always returned to his original sources of inspiration,—the palaces of Rome, Genoa, and Florence. This is evidenced by the design for the British and Foreign Bible Society (erected in 1866), and, later, in the fine composition for the new Museum and Library for St. Bartholomew's Hospital, which has all the vigour, simplicity, and refinement of the best Italian work.

In Gothic Mr. I'Anson was not so successful as in Italian; he, however, designed several buildings in this style, among which may be named Merchant Taylors' School, Charterhouse; a new roof and extensive additions to Merchant Taylors' Hall; Chapel and Almshouses at Lee, Kent, for the Merchant Taylors' Company; and some schools. He restored Lingfield Church, Surrey, in 1845; and the Dutch Church, Austin Friars, in 1865–6, in conjunction with his former pupil, the late William Lightly.

Mr. I'Anson was for many years Surveyor to the Merchant Taylors' Company, for whom he carried out a large amount of work, and also to St. Bartholomew's Hospital. He was besides District Surveyor for Clapham and part of Battersea, which appointment he held from 1844 to the close of his life, as well as holding numerous other minor appointments as Surveyor.

He was one of the earliest supporters of the Institute, having been elected a Life Fellow as far back as 1840. He was a constant attendant at the meetings and a frequent contributor to the sessional papers. One of his earliest contributions to literature was an essay on the Campanile, illustrated by numerous drawings from his own sketches, which was printed by the Institute as a detached paper. His first paper at the Institute was a paper on the Temple of Niké Apteros, or Wingless Victory, at Athens, in 1840. In 1843 he contributed a paper on the Church of St. Matthias, at Coborn, on the Moselle. In 1845 he read two papers, one on the Architecture of the Renaissance in France, and another on the Early Mosaic Pavement representing the Seven Ages of Man in Siena Cathedral. These papers were followed in 1846 by a Note on a Mural Painting at Lingfield Church discovered in the course of the restoration, and an account of the different methods of sewer building drawn from his experience in Southwark and elsewhere in 1847. In 1849 he read a paper on the Temple of Solomon at Jerusalem, based chiefly on Ramée's work; in 1851 he described the Cathedral of Beauvais, and in 1853 a method of raising a sunken floor at Hay's Wharf, Tooley-street. A trip to the Loire in 1855 suggested the subject of his next paper on the French Châteaux, *temp.* Francis I., and another trip to Germany in the following year suggested a paper on the ruins of Heidelburg, both of which were illustrated by a large number of his sketches. The recent improvements in Paris furnished the subject for a paper for the session of 1859: this paper contains a mass of interesting information with regard to the cost of the improvements carried out in that city. "Office Buildings in the City" was the title of a paper read in 1864, to which we have already referred. A description of the restoration of the Dutch Church, Austin Friars, was the subject for 1866, which was followed by a short account of the remarkable group of Romanesque churches in the Auvergne, near Perigueux, in the same year.

In 1867 Mr. I'Anson visited Russia, where he penetrated as far as Nishni-Novogorod, and in the course of the session of 1867–8 he contributed, as a result of his travels, a paper on the Kremlin at Moscow. He also read a paper arising out of this journey before the Architectural Association. In 1872 he read a paper on the "Valuation of House Property in London," and in 1878 a paper on the "Architecture of Norway," a country which he visited in the autumn of 1874. In the same session, 1877–8, he gave an interesting account of the construction of the iron roof over the Corn Exchange, Mark-lane. A two-months' residence in Rome during the months of November–December, 1878, gave the cue for a description of the excavations in the Roman Forum, and a trip to Cyprus furnished the materials for a paper from his pen on the churches, &c., in that island, in 1883. Subsequent visits to Rome in the three winters of 1883-4-5 led to an interesting paper, on "Recent Municipal Works in Rome," read by him before the Surveyors' Institution in May, 1886.*

Mr. I'Anson was a Justice of the Peace for the County of Surrey, a Fellow of the Geological Society and of the Surveyors' Institution; of the latter Institution he was President two years ago, a position he held for a few months concurrently with his position as President of the Institute of Architects.

Among the more recent buildings carried out by Mr. I'Anson may be mentioned the New Library and Medical School for St. Bartholomew's Hospital; Convalescent Home with Chapel, at Swanley in Kent, for St. Bartholomew's Hospital; Merchant Taylors' School, Charterhouse-square; New Court-room and Library, for the Merchant Taylors' Company; Almshouses and Chapel at Lee, for the Merchant Taylors' Company; Corn Exchange, Mark-lane; Offices in Cornhill, for the Universal Marine Insurance Company; Additions to the Church of Allhallows-the-Great and Less, Upper Thames-street; Restoration of St. Mary Abchurch; and Almshouses and Convalescent Home at Charlton, Kent, for the Trustees of the Dutch Church. In most of these, Mr. I'Anson's eldest son, Mr. E B. I'Anson, M.A., who had been for a good many years in partnership with his father, was associated with him.

A few of Mr. I'Anson's works have been illustrated in the *Builder*. Among them we may name his "British and Foreign Bible Society's House," Queen Victoria-street, of which a view will be found in vol. xxiv., p. 447. This building, in itself a large one, has been subsequently dwarfed by the much larger and far inferior building, architecturally considered, adjoining it, viz., the head quarters of the Post Office Savings Bank, carried out by H.M. Office of Works. A view of the premises in Cornhill for Messrs. H. S. King & Co. will be found in vol. xxix., p. 187. Mr. I'Anson, who, as will have been seen, was a great traveller, in 1882 contributed to our columns an interesting letter on the construction of houses in Cyprus, illustrated with sketches (see *Builder*, vol. xlii., pp. 449, 454).

* This and several other of the papers named will be found reported in the *Builder* volumes for the years mentioned.

Of works executed by him in conjunction with his son, Mr. E. B. I'Anson, M.A., we have illustrated two, viz., the new Corn Exchange, London (vol. xlii., p. 770), and some almshouses at Charlton (vol. lii., p. 727). In conjunction with Mr. F. T. Baggallay he submitted a design in the first of the recent abortive competitions for the proposed new Admiralty and War Office. Of this design we gave illustrations in vol. xlvii., pp. 298–299, 302–303.

A portrait of Mr. I'Anson was given in vol. xxix. of the *Builder*, p. 1006 (Dec. 23, 1871).

The funeral is fixed to take place at Headley Churchyard, near Liphook, Hampshire, to-day (Saturday), at one o'clock. Members of the profession wishing to attend will find a train from Waterloo at 9.30 for Haslemere. A deputation from the R.I.B.A. Council will attend the funeral.

NOTES.

THE improvement in the public health of the Metropolis, as shown in a diminished death-rate, occasioned by the administration especially of the Metropolis Management Act (1855) and subsequent sanitary legislation, is very strikingly set forth in a summary of vital statistics which Dr. T. Orme Dudfield, Medical Officer of Kensington, gives to his monthly report on the general health of that parish. It appears that the average death-rate for the fifteen years prior to the passing of the Metropolis Management Act was 24·8 per thousand. Dividing the fifteen years into three quinquennial periods, the average death-rates for these were respectively: 1841–5, 24·2; 1846-50, 25·4; and 1851-5, 24·8. During the following fifteen years, 1856-70, being the first fifteen years after the passing of the Act, the rate had fallen to 23·8. The rate during the three quinquenniads of this period were respectively: in 1856-60, 22·7; 1861-65, 24·4; and 1866-70, 24·3. In the next fifteen years, 1871-85, the average rate fell to 21·3 per thousand; the rate in the three successive five-yearly periods being: in 1871-75, 22·9; in 1876-80, 22·2; and in 1881-85, 20·7. In 1886 the death-rate was 19·9, and last year, 1887, it was 19·6, the lowest recorded since the present civil registration began. Dr. Dudfield points out that this remarkable decline in the death-rate implies the saving of tens of thousands of lives, to say nothing of myriad illnesses prevented, and will serve as a monumental record of the good effects of the sanitary legislation and administration of the last thirty-two years, long after the existing system of local government shall have undergone more or less drastic revision. In Kensington especially the decrease has been remarkable since 1861. In the five years, 1861-65, the death-rate was 20·3 per thousand persons living, and in 1866-70, 20·2 per thousand. The most striking decrease, however, comes after 1871, when the Vestry of Kensington inaugurated a more vigorous sanitary administration than had hitherto been exercised. In the quinquenniad 1871-75 the death-rate fell to 18·9, and in 1876-80 to 18·7, and in 1881-85 to 15·9; while during the last seven years the death-rate in Kensington was 16·0 per thousand of the population. The improvement has been largely due to the legislation of 1866 (the Sanitary Act), and of 1867 (the Metropolitan Poor Act).

THE consent of Parliament is this session to be asked for several important engineering schemes to the north of the Tweed. Glasgow is well forward on the list, with no fewer than four new railways, for the most part within the Parliamentary boundaries, and one only, the smallest of the four, extending no farther than the outer suburbs. The capital involved exceeds two millions, without reckoning reserves procurable under borrowing powers. One of these Glasgow projects is the defeated "Subway" of last year,—enlarged, and with certain objectionable points modified, but still

holding to the principles of equi-distant stations and the simultaneous movement of trains, combined with propulsion by stationary steam machinery, drum, and travelling wire-rope. The subway, as its name implies, keeps beneath the streets, and it is this year advanced as a work of ordinary double-line dimensions. It pursues a circular course, and crosses under the bed of the Clyde twice; occupying the full line of Buchanan-street (Glasgow's show street), and utilising some other almost equally important city thoroughfares. The Glasgow Central Railway, which is quite a new scheme, is an enterprise intended to parallel the City District Railway (the Underground) opened two years ago by the North British Company, and fully described in the *Builder* of October 24th, 1885; only this time the Caledonian Company are the prime movers. The Central, like the City District, proposes to cut the city across from east to west, taking a course for the greater part under the main east and west artery known sectionally as Argyle-street, Trongate, and Dumbarton-road, on a line which, in the eastern and central portions of the route, is more southerly than that followed by the older underground railway, although finally crossing the latter to the north, and finding termination in the north-western suburb of Maryhill, where it joins county lines already in existence. The cost-estimate of this work is one million, and it is regarded, locally, as the most important of the series of engineering projects, as well as that involving the largest outlay. On the eastern flank of the city the North British Company have planned a short feeder for their underground system, starting from the centre of Bridgeton division and forming a junction with the main-line metals at College Station,—a route calling loudly for some convenience of the kind. Their Bill has passed the Standing Orders, and it is almost a certainty that the work will be sanctioned; but the future of the larger schemes (which, however, have also passed the first stage of examination) is not held as quite so assured. Some critics are of opinion that Glasgow, long a laggard in the matter of railway extension, is now proceeding in too hurried a fashion, and will blunder seriously if the drag be withheld. The Subway scheme especially is strongly condemned in certain quarters, and the passing of the Bill will be strenuously opposed, although the flaws in the revised specifications certainly do not offer to the enemy the same chances which fell to his lot in the Parliamentary fight last year. The Glasgow Corporation are also in the Parliamentary field with a Bill for the construction of new city gas works in the Govan district, with service railways and other necessities of gas-making plant. Taking Scotland as a whole, and including those schemes advanced purely with a view to additional financial powers, there are on the list eleven Bills relating to railways, four to water and gas, and four or five affecting other unclassified interests, including the Greenock Harbour Trust, with proposals for the creation of additional stock to the extent of 1,800,000*l*. The full amount involved in these Bills is slightly in excess of five millions and a half.

AT the half-yearly meeting of the Great Eastern Railway, last Friday, the chairman (Mr. Parkes), alluded to the Railway and Canal Traffic Bill, and also to the independent measure promoted by the fishing industry. He does not appear to view the latter with much apprehension, although the Great Eastern derives a considerable portion of its revenue from the fish traffic. He said that he did not think Parliament would establish a precedent such as legislation on the proposed lines would involve, and his remarks coincide with our own impression on this subject,—that rather too much is aimed at in seeking for exceptional powers in favour of a particular industry. A sly thrust was made at the trade in another part of his speech, in which he attributed the falling off in their fish traffic to the herrings and other fish being almost unsaleable on account of their inferior quality; commenting, at the same time, upon the disgraceful state of the Metropolitan markets, and the discouragement with which their own efforts to remedy this state of things had been met. The half-yearly meetings over which Sir Edward Watkin presided were occupied with other matters,—the Manchester, Sheffield, and Lincolnshire, with the unfortunate Hexthorpe affair; the Metropolitan, with the result of the Inner Circle scheme; and the South-Eastern, with the disputes with their rivals. On all hands the Trade Associations are bestirring themselves, and giving expression to their views upon the forthcoming Railway Bill. The agricultural interest consider it essential that all preference to foreign produce should be unconditionally prohibited, and Mr. E. Bear, speaking at the Farmers' Club on Monday, said that if last year's Bill is to be introduced without alteration, it might as well be put on the shelf at once. A joint memorial from the Mining Association of Great Britain, and the British Iron Trade Association, was presented to Lord Stanley of Preston last week, explaining what the allied trades look for in the Bill, and corresponding, on the whole, with previous memorials on the subject. Lord Stanley expressed the hope,—in which all will join,—that an agreement may speedily be arrived at with as little friction as possible.

THE Postmaster-General (the Rt. Hon. H Cecil Raikes) was waited upon on the 27th ult. by a deputation from the Wolverhampton Chamber of Commerce, who urged upon him the desirability of reducing the postage of orders and invoices to a halfpenny. The right hon. gentleman, in his reply, pointed out that invoices, so long as they had no notes appended, could, as it is, be sent for a halfpenny. Now, although many firms only use the halfpenny wrapper for invoices, it is probable that there are many others who will be agreeably surprised by Mr. Raikes's announcement. The proviso, however, must be carefully observed, as the addition of such sentences as "The remainder of the goods will be despatched to-morrow," or "Your further esteemed orders will oblige," renders the missive "a communication of the nature of a letter," and the recipient has to pay accordingly. Further, it is, of course, advisable to pay the letter rate of postage in any case where inconvenience would be caused by delay, as documents enclosed in halfpenny wrappers are always liable to detention during pressure of business. The Postmaster-General had, the previous day, made a statement regarding the Australian mails, which will also give much satisfaction. After alluding to the saving which had been recently effected in the Indian and China mail contracts, he expressed a hope that the cost of passage to Australia would also be lowered shortly, and stated that the postal rates would, if possible, be correspondingly reduced. This would certainly be a great boon to many.

THAT Sheffield would be reduced to the Hobson's choice of either providing canal accommodation suitable for a heavy traffic, or seeing her great manufacturers follow the example set at Dronfield, has long been the conviction of impartial observers of the course of trade within, as well as without, Hallamshire. It is now more than two years since an attempt was made to raise capital for making the river Don navigable for vessels of 200 tons burden, and obtaining water access to Goole; but those who really were vitally interested in the accomplishment of such an enterprise preferred to wait, in the hope of a turn of trade. Such revolution as there is, however, is not reciprocal. It is continually in the same direction; and now there are signs in the air that the railway freighters, the railway managers, and the Government, as advised by the Board of Trade, are preparing to waste another session, as far as relief to the manufacturing interest is concerned, by introducing another Railway Rates Bill, which must be necessarily as much in the air, as much fought over, as unsatisfactory, and as unlikely to get on the Statute Book, as any of its numerous predecessors. If all concerned do not agree to take the first step to any improvement, namely, to ascertain what each description of traffic actually costs, the wise fable of the litigants and the oyster will again be acted over in Westminster; the only partakers of any good out of the contest being the professional gentlemen who aid in carrying it on, at the ultimate cost of the railway shareholders.

THE dividend of the Metropolitan Railway affords a striking illustration of the danger of expending an enormous capital per mile, however large may be the expected revenue. Out of the half-year's receipts of 308,000*l*., the expenses amount to 42½ per cent., against 40½ for the corresponding part of 1886. The profit of 177,000*l*., after payment of fixed charges, only provides a dividend at the rate of 2¾ per cent. per annum on the original stock, with 21,000*l*. to carry forward to the credit of the next half-year. The directors say that the preceding year's traffic was abnormally increased by the Indian and Colonial Exhibition at South Kensington. But that does not alter the figures above stated, which show that an enormous traffic, worked at a much lower co-efficient of working cost than the average for the lines of the United Kingdom, only yields so poor a return as 2¾ per cent. on capital outlay. The result of the general inflation of the capital charge per mile on the majority of the English lines may be inferred from this remarkable example.

THE Great Eastern Railway Directors propose a dividend on Ordinary stock at the rate of 3½ per cent. per annum, carrying forward a balance of 40,000*l*. The dividend for the corresponding half of 1886 was at the same rate. The London, Brighton, and South-Coast can divide at the rate of 5½ per cent. per annum, against 5⅛ per cent. in 1886, on Ordinary stock. The South-Eastern declare a dividend of 7 per cent. per annum, against 7¼ per cent. in 1886, on Ordinary stock. The Lancashire and Yorkshire recommend a dividend of 4¾ per cent. per annum, carrying forward 21,000*l*.

IN the second number of *L'Architecture*, M. Paul Sédille commences an essay on the "Renaissance de la Polychromie Monumentale en France," which is to be continued in subsequent numbers.

IN the number just issued of the *Bulletin de Correspondance Hellénique* (xi., 6th Dec., 1887) the first regular report of the excavations at Mantineia appears. We have from time to time referred to these excavations, and especially to the pedestal with the representation of Apollo, Marsyas, and the Muses seen by Pausanias. This pedestal will be published in phototype plates in the next issue of the *Bulletin*. For art, these sculptures will undoubtedly be regarded as the most important result of the excavations, but in the departments of architecture and topography and epigraphy there has been also a substantial yield. M. Gustave Fougères, who writes the account, reports that the plan of Mantineia, as now laid bare, corresponds to the account of Pausanias: the theatre occupies the central place, various temples and other buildings are grouped round. The Temple of Hera seen by Pausanias may, he thinks, be identified with considerable probability. He draws special attention to a series of twenty-five capitals dating from archaic times down to the Roman period.

IN reference to the subject of Brasses, which has been brought into notice a good deal lately, we understand that a work on "Kentish Brasses," by Mr. W. D. Belcher, is now in the publisher's hands and will be shortly issued.

THE Water-Colour Exhibition at the Dudley Gallery cannot be called a remarkable one, but it contains a fair average of good works, some of them of rather special interest. As usual, there are some fine things by Mr. Walter Severn, especially "Sea Coast, South of Ireland" (54). Mr. Newton Benett's delicate drawings, "Thames - Land" (58) especially, a scene in one of the villages on the Upper Thames, are worth looking at. There are one or two very clever architectural

subjects by Signor Giampietri, especially "Beneath the Portico of the Temple of Antoninus and Faustina" (142), remarkable for its truthful and powerful effect of hot sunlight and cool shadow.

THIS has been a very fatal week in the architectural profession. Since our "Letter from Paris" was sent off, the news follows it of the death of the eminent French architect, M. Questel, who died on Monday last, at the age of 80. M. Questel was the oldest member of the Architectural Section of the Académie des Beaux-Arts, vice-President of the Conseil des Bâtiments Civils, past-President of the Société Centrale des Architectes, and was an Honorary and Corresponding Member of the Institute of British Architects. Of his works we may be able to furnish some account in our next.

LETTER FROM PARIS.

As we mentioned in our last letter, the artists chosen to direct the decoration of the Hôtel de Ville, MM. Bonnat, Besnard, and Clairin, had been asked by the Committee to select their assistants in each department, and the following artists are now appointed for each portion of the work:—

Salon des Arts (ceiling by M. Bonnat); M. Léon Glaize has been commissioned to decorate the frieze, M. Gabriel Ferrier for the escutcheons, M. Rivey for the medallions, MM. Tony Robert-Fleury, Rauvier, Dagnant, Bouveret, and Layraud for the allegorical panels.

Salon des Lettres (ceiling by M. Lefebvre); the friezes will be done by M. Cormon; the two *dessus de portes* by M. Henner; the allegorical panels by MM. Eugène Thirion, Hector Leroux, Mongenot, and Benjamin Constant.

Salon des Sciences (ceiling by M. Besnard); M. Gervex will paint the friezes, M. Carrière the escutcheons, M. Marchal the medallions, M. Duez the door-heads, and MM. Buland, Armand Berton, Rixens, and Jeannot the panels. There still remain to be settled, for these galleries, the artists who are to paint the twelve views of Paris in the panels on the piers supporting the arcades. Besides the large *Salons* is a small chamber given over to M. Lhermitte; and further, in a side gallery of the "Salle des Fêtes," MM. Baudouin and Cazin are to paint two large panels. One of these will represent "une distribution des secours un jour de fête publique," a subject which will be suitable enough for the decoration of a "Salle des Fêtes," while it will require all the talent of the painter to render it effective without falling into a trivial realism. In addition, MM. Ribot and Vollon will also have large doorway decorations to paint over the doors of the "Salle des Banquets." The Committee has still to settle about the treatment of the grand staircases and the "Salle des Fêtes" itself, for which M. Lavastre has been commissioned to prepare a decorative scheme.

The Municipality of Paris has just purchased M. Rodin's fine bust in marble of Victor Hugo, as well as two other graceful works which figured in the last *Salon*, the "Amour blessé" of M. Mabille, and the "Premier Frisson" of M. Roufosse.

A few days ago the President of the République officially visited the works for the Great Exhibition, and as M. Carnot, before taking to politics, was an able engineer and an expert in many scientific studies, he was able to appreciate fully the work in progress under M. Alphand. The Eiffel Tower is growing day by day visibly, without having as yet caused a single accident or the death of one man among the staff, which speaks very well for the careful way in which the work has been carried out during eleven months.* After the construction of the first stage of the scaffold for the upright portion of the tower, which is an important matter, and will take a little time, the iron work will be proceeded with.

In connexion with the Exhibition, we have already referred to the interesting and curious reproduction of the Bastille at the angles of the Avenue de Suffren and the Avenue de Lamothe-Piquet. This restoration has been made by the architect Colibert with great exactitude. The visitor who approaches by the Avenue de Suffren sees the Rue St. Antoine stretching before him as it was in the last century. To right and left are specimens of the houses which lined that street a hundred years ago, and some of which have survived to the present day. Here there is a Post-office with furniture of the period, found in the Department du Var; there the Hôtel de Mayenne, the Auberge du Lion d'Or, further on the Église Ste. Mairie, and on all hands shops with their old-fashioned and picturesque signs and projecting upper stories. Then we come to the *place*. To the left are the first houses of the Rue de Tournelles, the office of a public writer, lodgings of soldiers on guard, then the ditch, and to the rear of it the form of the ill-omened old prison rises, of the exact dimensions of the original, and reached by a draw-bridge. The interior plan has been, to a great extent, reproduced; the vaulted kitchens, the subterranean dungeons, the grated cells, the narrow staircases, and the interior court whence the visitor goes out on the other side to find the Porte Ste. Antoine, and the termination of this "restoration," which will be one of the curiosities of the Exhibition.

As we are near the Trocadéro we may take the opportunity to say a word about the "Musée de Religions," founded by M. Guimet, and which will soon be thrown open to the public. This large building, triangular in its main plan, rises at the junction of the Rue Boissière with the Avenue d'Jena, on a site given by the City of Paris. The architect, M. Terrier, who has endeavoured to give his building a Greco-Roman aspect, rather out of keeping with its object, has built at the outer angle a large rotunda 30 mètres high, surmounted by a loggia and a large and unwieldy-looking domical roof. The principal façade, towards the Rue de Boissière, is over 200ft. long and with pavilions at the centre and at each end, decorated with an Ionic order. The façade to the Avenue d'Jena, about 150 ft. long, has no central feature, but has, like the other façade, terminating pavilions at the ends, and three stories of galleries with balustrades. In the interior court will be a large conservatory where plants, terrestrial and aquatic, will be collected, especially such as are eastern in origin and illustrate ancient Biblical and other references. The same kind of archaism is observable in the architectural treatment of the interior, which is well studied and convenient in its arrangement.

The energy displayed by M. Guimet in the arrangement of his large collection might be an example to the Union Centrale des Arts Décoratifs, which displays such a prudent deliberation in its organisations. It has been badly seconded by the Government, certainly. The "Union" is asking for the at present ruined palace on the Quai d'Orsay, but the State wishes to instal the Cour de Comptes there; and the Parliamentary Committee appointed to consider the question has offered the Union, instead, the unoccupied buildings of the Pavillon Marsan at the Tuileries, for a sum of some millions (francs); but considering the disadvantageous nature of the situation and the building, it is not likely that this offer will be accepted.

M. Castagnary, the new Directeur des Beaux Arts, is preparing for the Galerie d'Apollon the cases intended for the exhibition of that portion of the Crown jewellery which has not been sold. These cases, which are made after a special design by M. Guillaume, will be very richly-carved pieces of work. They are to be circular in form, surrounded by a balustrade, and will descend every night into a subterranean strong room. M. Guillaume is also preparing a design for the gallery to contain the portraits of artists painted by themselves, which collection, to be organised by M. Castagnary, will be near the Salle des États. M. Hector Leroux is also completing for the Louvre a large ceiling, on canvas, to be fixed up in the Salle des Pastels. It is divided into three compartments, one of which represents "An Ode to Venus," another is the "Union des Poésies Grecque et Latine." The same gallery, which has just received a masterly work by Millet, is also to have a new addition shortly in the shape of a picture by Manet.

As unfortunately politics interfere in everything here, there is to be a marble slab fixed up in the Louvre announcing that the Museum, founded in 1792, was opened to the public on the 10th of April, 1793. This inscription, which credits the Convention with the foundation of the National Collection, is a historical falsehood of the first water. With all deference to M. Castagnary, the collection of pictures belonging to the Crown, which already, under Louis XVI., passed for the finest in the world, was since 1790, at the latest, thrown open to the public. The First Republic did nothing but complete an already-existing collection, by sending to the Louvre the pictures carried off from Versailles. As to the Museum of Sculpture, on the other hand, the organisation of that belongs to a period much later than that of the French Revolution.

The Luxembourg Museum receives an addition in the shape of the "Pauvre Précheur" of M. Puvis de Chavannes; and in the garden, which may be considered as a kind of annexe to the sculpture museum, there has been placed, a few days ago, the colossal "Pheidias," by M. Aimé Millet, and the remarkable group, by M. Boucher, "Au But," which gained its author a medal in the *Salon* of 1886, and which is already well known in London by the reproductions of it which have been on sale here.

M. Alphand has scored a success with the Chambre des Députés, in spite of strong opposition, in regard to an important matter connected with the sewerage of Paris. Two projects were under consideration. One was to conduct the sewage of the city to the sea by a canal, which was to discharge on the Normandy shore near Dieppe, close, that is to say, to a well-known bathing resort, of which it would practically have been the ruin, besides being an extremely costly scheme. The other scheme, recently studied by the late M. Belgrand, and taken up again by M. Alphand, was to pump up the sewage by powerful engines at Clichy, and send it in large conduits to the plain of Achères in the Department of Seine-et-Oise, behind the forest of St. Germain, and about seventeen miles from Paris. This latter project has been carried, and the sewage of Paris, instead of being sent to infect the sea coast near a health resort, will be utilised for irrigation and manure on the plain of Achères. This system may be considered as the best solution of a problem which has exercised the city government of Paris, more or less, for sixty years past.

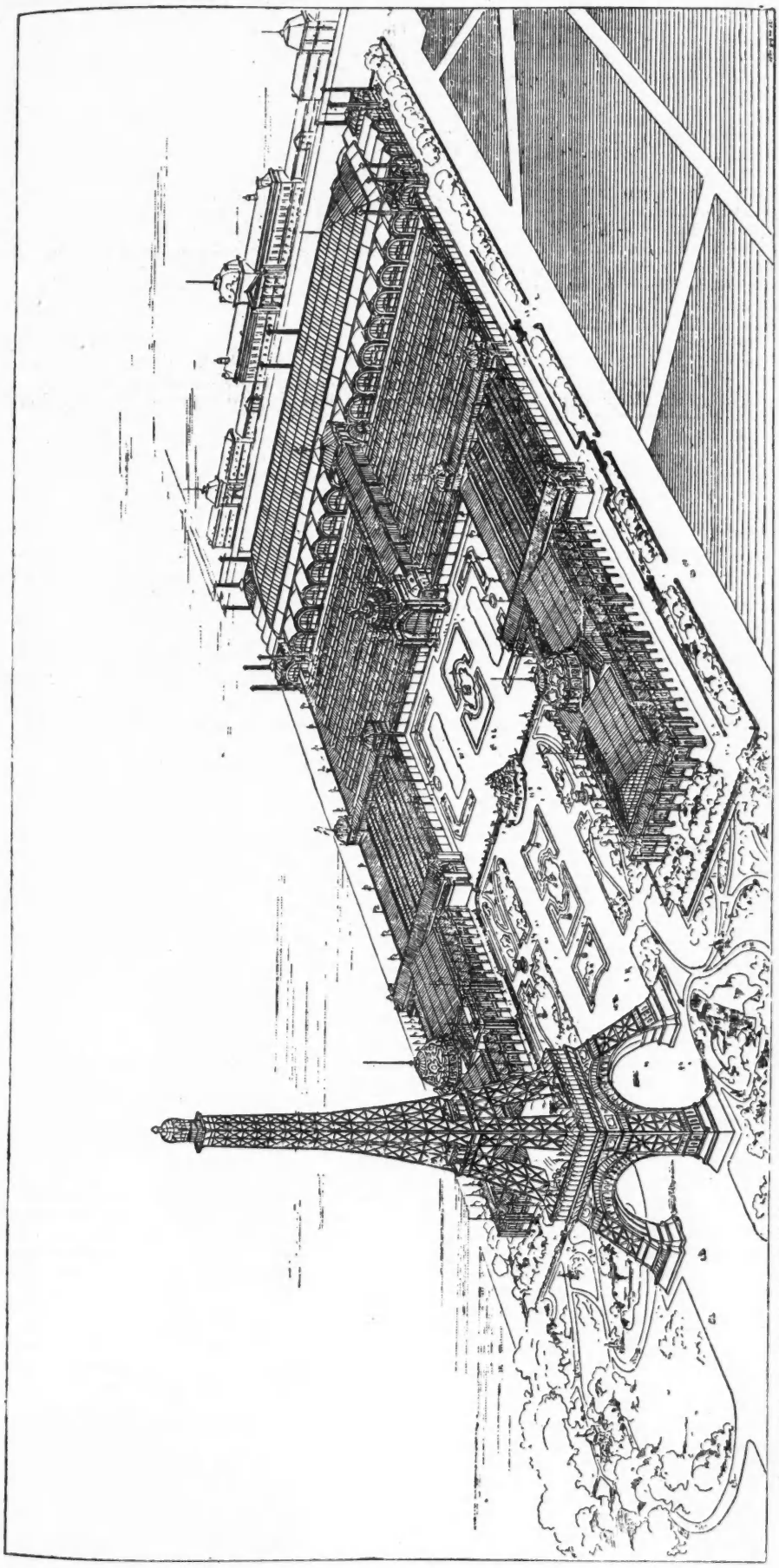
The Place de la République will shortly be connected with Belleville by a traction railway. It would be very desirable to have a similar means of communication to connect the centre of Paris with the heights of Montmartre, where the Church of the Sacré Cœur will be completed in two years, and where access for foot passengers is a most fatiguing climb. The walls of the church just referred to are now up to the cornice level; the choir is covered in, the crypt nearly finished. The construction of the arches carrying the central dome has still to be carried out, and when this is done and the main and principal façades finished to the height of the pendentives of the dome, the centre space will be temporarily roofed so as to allow of the use of the church for service while the dome is being completed.

We may mention the result of two architectural competitions in the École des Beaux-Arts. The premium in the Chaudesaignes competition has fallen to M. Laffillée, pupil of M. Ginain; three "honourable mentions" being given to MM. Girard, Senèque, and Delmas. The Godebœuf competition, of which the subject was "a Bridge between a Museum and its Annexe," has also been decided a few days ago. The "premières médailles" went to M. Eustache (pupil of M. Ginain), MM. Godefroy and Jozt (pupils of M. André), and M. Muller (pupil of M. Guadet). Forty "honourable mentions" were accorded to other competitors. We may mention also the result of the competition for obtaining the Government diploma, which has been awarded to twenty-two architects. The subject was "An open Market."

There have been many losses by death in the French artistic ranks during the past month; we have to record the death of Claudius Lavergne, the glass-painter; Guénepin, the architect; Palizzi, landscape and animal painter; Edouard de Beaumont, the water-colour artist; Matout, the painter of historical subjects; and the sculptor Truphême.

Claudius Lavergne, a pupil of Ingres, was a conscientious artist and an untiring worker, full

* To have got up such a structure to the height of 130 ft. (which is about the p int at present) without accident to li'e or limb, is certainly something to boast of, if we consider the unhappily rather numerous and serious accidents which have taken place in the construction of some large iron bridges in this country. Such accidents, it must be admitted, result often from carelessness on the part of the sufferers themselves; and perhaps the French workman is a more cautious person than the English.



General View of the Paris Exhibition Buildings as intended, with the Eiffel Tower in the foreground.—From the "Bulletin Mensuel" of the Société Centrale des Architectes.

of those classical traditions of the past with which Ingres had inspired him. He laboured for thirty years in the art of glass-painting. Among his most important works are the windows of St. Merri and St. Augustin in Paris, the restoration of the windows of the chapel of Versailles, those of the chapel of Louis XII. at Blois, the windows of the cathedrals of Beauvais, Senlis, Noyons, Rennes, and Verdun; not to mention other remarkable works at Lyons, Alençon, and Cannes. His name and work were well known beyond the limits of France. The windows of the Convent de la Mère-Dieu at San Remo, those of St. Patrick at Sydney, Australia, and those of the Chapel of St. Vincent de Paul at Buenos Ayres, were also the work of this indefatigable artist, who died at the age of seventy-three.

M. Jean François Guénepin, architect, who has died at the age of 81, was the pupil of Auguste Guénepin. He obtained a second prize in architecture in 1835 and the Grand Prix in the competition of 1837. On his return from Rome he became successively an architect under the municipality, and under the State, and commenced the Mairie of the Old 12th Arrondissement (completed by Hittorf); he restored the Church of Monfort l'Amaury, and was one of the jury of the Beaux-Arts from 1855 till his death.

Joseph Palizzi, who made a speciality of the study of animals, lived in France since 1844, and, though born in the Abruzzi, was essentially a thorough Parisian. For forty-three years his name has not ceased to figure on the pages of the *Salon* catalogue.

Edouard de Beaumont, though he was never very popularly known, had produced a great deal and exhibited often. Some of his paintings, of a character a little too Rabelaisian, have been reproduced in profusion by photography: among them the "Suite d'une Armée," the "Part du Capitaine," the "Tentation de St. Antoine," "Les Sirènes," &c. He was an active member of the French Society of Water-Colour Artists, and many of his painted fans are sold at high prices in America. He has also illustrated many books with pen sketches, such as "Fortunatus," the fables of La Fontaine, and the works of Brantôme; and at the time of his death he had just undertaken the illustration of the works of Alfred de Musset. He was a learned collector also, and his will leaves to the museum of Cluny twenty ancient swords of great value and rarity.

Matout was a painter who had his day of celebrity. He obtained a troisième médaille in 1853, and the Cross of the Legion in 1857. He executed a number of works for the churches of Paris, especially for St. Gervais and St. Sulpice; and he also was the author of the decoration of the large amphitheatre of the École de Médecine, the ceiling of the Salle des Empereurs at the Louvre, the chapel of the Hospital Lariboisière and that of the Hospital of St. Louis. He died at the age of seventy-six, in, we regret to say, very poor circumstances.

François Truphême, who has died at the age of sixty-eight, after a long illness, was a pupil of M. Bonassieux. He gained medals in the *Salons* of 1859, 1864, and 1869, and took an honourable place among modern French sculptors. Among his best works may be mentioned the statue of Mirabeau, at Aix; that of Rabelais, erected at Meudon; that of Condorcet, which adorns the public square of Bourg-la-Reine; the decoration of the monumental fountain at Aix, &c.

We may conclude our letter of this month by recording that the Cross of the Legion of Honour has just been conferred upon several artists; among painters MM. Besnard and Clairin have received this honour; among sculptors, MM. Boucher and Rodin; and among architects M. Paulin, "Inspecteur des Bâtiments Civils" and gainer of the Prix de Rome of 1875. The selection of these artists for this official honour has met with general approval.

THE PARIS EXHIBITION.

WE give a small bird's-eye view of the Paris Exhibition buildings as they will be when completed, showing the Eiffel Tower in the foreground, reproduced from a view published in the *Bulletin Mensuel* of the Société Centrale des Architectes. It may assist in explaining some of the notes and descriptions given from time to time in our monthly "Letter from Paris."

OLD ST. PANCRAS CHURCH.

WE learn that Mr. A. W. Blomfield, A.R.A. has been employed to prepare plans for an enlargement, with other desirable improvements, of Old St. Pancras Church. These alterations will involve an outlay of some 800*l.* or 900*l.*, the greater part of which cost will be met, it is hoped, by voluntary subscriptions. This little church, standing against Pancras-road, and northwards of its ancient burial-ground, presents externally but few indications of its venerable history. The existing fabric, indeed, dates from the end of the twelfth century. In 1848 the old tower was pulled down, when its stones were used for recasing the body of the church, which at the same time was repaired and enlarged by Mr. A. D. Gough and Mr. Roumieu in the Anglo-Norman manner. That was the precursor of the very small tower and the little belfry, which are described in a schedule of the visitation made hither in 1251, whereof a record is preserved in the archives at St. Paul's. Norden, writing in 1593, claims for the church an antiquity rivalling, if not excelling, that of St. Paul's itself.

There can be no question that Saint Pancras-in-the-Fields yields to very few churches in our country as touching the antiquity of its founda-

tion. Some would connect its dedication to the Phrygian boy-martyr, with a cherished memory of the three Pagan boys, captives from Ælla's northern province of Deira, whose fair beauty and slavedom excited the pity of Gregory the Great when yet a monk of St. Andrew's convent on the Cœlian Mount at Rome. Pancratius was the patron saint in particular of children. His name was taken for the place of his burial,—the Calepodian Cemetery in Rome. There the church of Sto. Pancrazio, behind the Vatican, marks the scene of his sufferings and death under Diocletian, in the year 304. It was to St. Pancras that Augustine dedicated anew the heathen temple, formerly a British church on the slope of St. Martin's-hill, which Æthelberht had assigned to the monks for Christian worship in his capital of Kent. The monastery of St. Andrew, whereof Augustine was monk when sent out by Gregory to England, stood upon ground which had belonged to the family of the youthful martyr. A long-lived tradition avers that here, on the site of this little church in London, hard by the shore of the Fleet, was raised the first altar to Christ in Britain: that is to say, anterior to the Saxon invasion. This cannot now be either contradicted or confirmed.

In Hone's "Every Day Book"* may be found Dr. Stukely's circumstantial description, with plan, more or less fanciful, of the Roman camp, whereof he fixes the prætorium close by the very spot where the church now stands. In vol. ii. of his Itinerary that antiquary writes, under date October, 1758, that the prætorium is still plainly to be seen, on the western side of the brook (or river of wells), and that the vallum and ditch are visible,—the breadth being, east to west, forty paces; the length, north to south, sixty paces. He claims to have easily discerned traces of the entire camp, to its total dimensions of 560 by 340 paces, and within this area places Cæsar's army of 40,000 men. Immediately north of the village church he assigns a prætorium to Mandubrace, nephew to the British Caswallon. Since, according to Stukely's plan, the camp was divided into two parts by the turbulent Fleet, and lay in the hollow of the Brill, the sceptical reader has, probably, small share in the doctor's enthusiasm. A correspondent writes to the "Every Day Book" saying that (October, 1826) "the rage for improvement in that neighbourhood" has left nothing of the camp remaining except the prætorium, with its ditch nearly filled up. Had he lived to our own day that writer would find still harder things to say against a rage for improvement which has covered the whole camp's supposed site with a vast railway station, Sir Gilbert Scott's hotel, and, within the past two or three years, coal, goods, and bottled beer depôts. A later contributor to the same journal (October 24, 1826) cites Lysons as against Dr. Stukely, to advance for the prætorium no remoter antiquity than as being sites of the vicarage and parsonage-house, which are set out in the 1251 survey. Nevertheless, the name of Battle Bridge is popularly derived from the defeat there of Queen Boadicea by Suetonius, whose troops, however, may have been entrenched above, in the higher ground at Pentonville. There is authentic record of the discovery in 1842, at King's Cross, of a stone inscribed "Leg. xx.,"—whilst Tacitus in his Annals, book xiv., describes the site and conflict of the mighty encounter between the Britons and their conquerors.

We must, perforce, hasten on to more authoritative times. Pancras is cited in the Conqueror's Survey of Domesday. The manor land is scheduled therein as extending over one carucate, and employing one plough. It has on its estate twenty-four men, who pay rent to the amount of 30s. per annum. The adjoining and more extensive manor of Cantelows or Kennestoune (Kentish Town) is also mentioned in that same survey as being held of the canons of St. Paul's, at 40s. rent, by four villeins and seven bordars. Within the now parochial confines are situated the prebendal manors of Pancras, Cantlers or Cantelows, and Tottenhall. To these some would add a fourth, namely, Rugmere, though that would appear rather to correspond with St. George, Bloomsbury, and St. Giles-in-the-Fields. Pancras manor passed from the family of Ferrers to that of Knowles, and then, after the Dissolution, to Lord Somers. In 1251 the parish contained, as Brewer tells us, only forty houses. For generations parish and parish church were alike forlorn. Norden bewails the latter's condition as all alone, utterly forsaken, old and weather-beaten. The same author makes plaint (1593) over the church's surroundings; says that the once many buildings about it are decayed, "leaving poore Pancrast without companie or comforte." He goes on to caution wayfarers, and all visitors to the church, not to go thither too late, and when they do go to be wary of footpads and thieves. As late as scarcely more than one hundred years ago the inhabitants of this,—one of the largest parishes in London,—did not exceed 600 souls. By the latest census the population stood at 236,250; this is spread over an area, oblong in shape, of 2,672 acres, with a rateable value amounting to 1,500,000*l*. The open fields that form the middle distance to Hogarth's painting of the Guards preparing to march from the Adam and Eve by Tottenham Court, for Finchley Common,—the picture itself, now in the Foundling Hospital, dating from a time when all north of that hospital was open country,—have since been covered by Somers Town. This poor neighbourhood sprang up in the interval 1820–30, during the lesseeship, mainly, of Mr. Jacob Leroux, under Lord Somers, freeholder. Agar Town, in the same quarter, derives its style from a gentleman of that name, who granted a lot of short leases for a mass of very inferior houses, most of which, however, have recently been levelled for the extensive encroachments of the Midland Railway Company. By their Acts of 1862-3-4 that company obtained powers for extending their line from Bedford into London. The approaches to the London terminus were accordingly driven through the burial-ground of St. Giles-in-the-Fields (opened in 1803), and Old St. Pancras churchyard as enlarged by about 3½ acres under the Act of 1792. The desecration of the ground involved in these proceedings excited considerable indignation at the time, and remonstrance was so far successful as to secure the cutting of a trench in lieu of the original proposal to make a tunnel through earth crowded with human remains.

At the present day the chief interest that centres around this church rests in the fact that so many illustrious persons are interred in the graveyard around. Since their names are given in the ordinary guide-books, we do not propose to rehearse them here. That so large a number of the dead were of the Roman Catholic faith has never been satisfactorily explained. Some persons aver that at Pancras, or Pancredge, mass was sung posterior to the Reformation; others claim unusual sanctity for a spot where a few Roman Catholics are supposed to have been burnt in Queen Elizabeth's day,—the martyrs whose recollection evoked the prayers of Dr. Johnson as he twice passed the church when out walking with Dr. Brocklesby. And here lies a notable lady,—in her childhood a pet of Dr. Johnson,—whose burial (1846) has escaped notice. A large table stone,—removed, we believe, from its original position,—commemorates Lady Caroline, *née* Mackenzie, widow to Louis Malcolm Drummond, at one time heir presumptive to the Scots earldom of Perth and Melfort. Like to her husband, this lady was representative of an ancient Scots house who had lost titles and fortune in fidelity to him they deemed to be their lawful king. A distinguished ornament of the literary and fashionable circles of her day, she, when a little child, had been a great favourite of Dr. Johnson, a frequent guest at the house of her father, Kenneth, 7th and last Earl of Seaforth. Her lineal descent from King Charles II. formed, as in the case of Beauclerk, an additional attraction for Dr. Johnson, who would fondle her, and then, making her a low obeisance, call her his "little Jacobitish Mistress."

* Vol. ii., columns 1345-50.

Water Supply, Featherstone. — The Featherstone Local Board have unanimously appointed Mr. Malcolm Paterson, M.Inst.C.E., Bradford, as engineer to design and carry on scheme "A," reported on by him in October last, the estimated cost of which is 7,300*l*. The water is to be purchased in bulk from Wakefield, and the works will consist of a line of conduit, covered service-tank, and distributing mains. The local wells are now drier than has ever been known at this season of the year, and in many cases a precarious supply has to be fetched in pails from distances exceeding a quarter of a mile.

ARCHITECTURAL MOULDINGS.

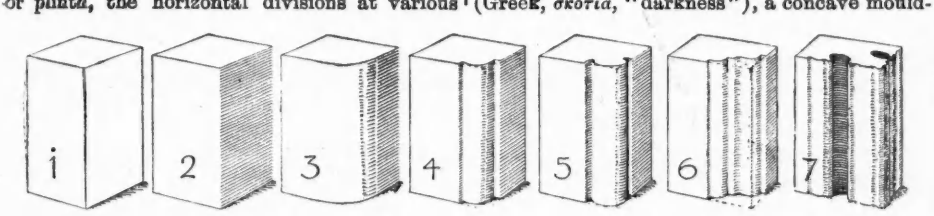
A lecture on this subject, illustrated by a number of sections of mouldings of various schools, was given by Mr. H. H. Statham at the London Institution, on Thursday, January 26th. He said that the subject might appear to a general audience to be a rather dry and uninteresting one; but it was exactly because he believed that was the case, and that so very little was known about it outside of the architectural profession, that he had selected it as the subject of a lecture. To those who studied buildings from an architect's point of view the mouldings were among the most interesting details of a building; they were those on which a great deal of the expression of architecture depended, and which, in regard to all architecture previous to the Renaissance, were the most trustworthy indications of the date of a building; and they were the details which every architectural sketcher and student was most careful to draw and record accurately, since they formed, so to speak, the most important part of what might be termed the anatomical expression of the building.

A moulding might be defined as a means of modelling the surface of stone work or other building material in a parallel direction, so as to produce lines of shadow, light, and half light. If we took a piece of squared stone set up on end, such as might form the side of a window opening, and placed it so that the front plane should be in sunlight and the side plane in shadow, we saw (fig. 2) a distinctly-defined line of demarcation where the plane in light and the plane in shadow met. If we made a drawing of the same stone without the use of shading, we should have to define the meeting of those two planes by a black line, as in fig. 1; but it must be remembered that such a representation was only a conventional one; there was no visible *line* in fact, there was only the change in the direction of the plane which caused a change in the reflected light from the surface; and if we could get the sunlight reflected with equal intensity from both planes we should lose the angle to the eye, as, in fact, sketchers both of architecture and nature knew that they sometimes did lose the visible angle of an object entirely in a diffused sunlight and in certain positions, and where the colour of the object was identical on each plane, and had to change their position and their relation to the light in order to see the angle. But where the sunlight was reflected at a different angle to the spectator from each plane, or where one plane was in light and the other in shadow, the meeting of the two differently-lighted planes formed a continuous edge or line; we had a lighter band and a darker band distinctly defined. Now this was what all moulding consisted in: it was the production of varying lines of light and shadow by varying the planes of the surface in relation to the spectator and to the light. But in order to produce the effect, these variations of plane must be decisively marked and grouped. If we were merely to round off the edge of our stone, as in fig. 3, we should produce a variation in the light on the surface, no doubt, but it would be in a weak and ineffective manner, not adding any force or definition of line to the angle, but taking away the one definite edge line which previously existed. Now the object of moulding the surface was to increase the force and expression of an architectural member by breaking it up into distinctly-defined parallel planes, so as to substitute for the two simple bands of light and shadow with their single meeting edge, a greater number of distinctly-defined bands of light and shadow, defining the direction of the architectural member, whether horizontal, vertical, or curved, by a number of bands instead of the one single meeting edge or *arris* of the squared stone. But if we sank the rounded portion below the main surface of the stone on each face, as in fig. 4, we then had several distinctly-marked planes giving as many bands to the stone; we had a thin line of shadow from the first sinking, then a light graduating into shadow on the rounded member, then a line of light from the sinking at the other side. This, which was a common form of moulding in Classic as well as in Early Gothic architecture, and, in fact, was to be found occasionally in almost every style of architecture, might be taken as a typical example of the method and object of moulding. The object was in general to give stronger emphasis to some part of the structure by dividing it up thus into parallel lines; the method was

so to model the surface that each member of the moulding should be distinctly marked off from its neighbour by a decisive change in the angle, and consequently in the reflected light of the surface. Here the rounded member was distinctly defined by the two sinkings at each side of it; it might be otherwise defined, as in fig. 5, by working the roll out of the original surface of the stone, but carrying it round so as to cut a niche into the stone on each side, and give a strongly-marked shadow. This latter method, which gave a greater look of force to the angle, was characteristic of Gothic work, as the other one was characteristic of Classic work. The effect of both treatments was to give greater force to the angle of the stone, which, paradoxical as it might seem, was actually effected by cutting away some of its substance.

Having shaped the angle of our stone into a single moulding with its defining limits, we might go a step further and work on it two sets of mouldings, as in figs. 6 and 7, and so on to a much greater extent of elaboration, as would be seen when we came to look at Gothic examples. Mouldings might be grouped under four heads: flat surfaces placed at different angles, and which are almost invariably used in narrow strips as defining or dividing members; convex surfaces; concave surfaces; and surfaces of compound curves, combining convex and concave. Convex surfaces, and concave surfaces when turned towards the light, always meant gradations of light and shadow; concave surfaces turned from the light meant a sharply-defined line of shadow on some part of their surface; compound curvatures might show either defined shadows or graduated light and shadow, or both, according to their position in reference to the light.

The positions in a building where mouldings were generally applied were in the principal horizontal divisions of a building, as the base or plinth, the horizontal divisions at various



stages, which were called "string-courses," and the crowning member, or cornice; and to the edges and undersides of openings, such as doors, windows, and arches. Moulding was also applied, though not quite so generally, to the columns or piers forming the supports of a building. The designing of the profiles of mouldings in reference to the position they were to occupy in the building was a very delicate matter, requiring more care and consideration than, it was to be feared, it always received. The profiles had to be designed so as to produce a variety of character suitable to different positions; the base-mouldings should have a different character, for instance, from the string-courses, and those again a different proportion from the cornice mouldings, though with a similar character in some cases, for string-courses, especially in buildings of the Classical style, were often miniature cornices. The position of the mouldings in regard to the eye required careful consideration in view of their effect when in position, whether above or below the eye, near or far from it, and also with regard to their projection when seen at the angle of a building, at which point the projection of the two lines of moulding, meeting at an angle of 45°, was necessarily greater when viewed obliquely (as they frequently would be viewed) than appeared on the actual section of the profile, so that what seemed well-proportioned when drawn on paper would seem disproportionately projecting when viewed in execution.

Sections of a great number of typical forms of moulding were exhibited, commencing with Egyptian mouldings, which were very few and simple, the principal and orthodox Egyptian moulding consisting merely of a small rounded member and a large concave curve over it, ending with a strip of plain vertical surface as a finish. This was the crowning member of nearly all the main portions of nearly all the Egyptian temples; occasionally there was another double-curve member added over it; but this usually only in subordinate positions. The reason for the broad and simple character of Egyptian mouldings was no doubt partly to be found in the nature of the material in which they worked; granite being a substance very intractable and difficult to work in complicated sections requiring much cutting or undercutting; but another, though less direct reason, probably was the glare of the sunlight, which gave great power and effect to mouldings without much depth of cutting,—the usual crowning hollow member being calculated to produce, as was shown in a sketch, a strongly-marked and broad shadow, which in itself almost gave a new line to the cornice without any change of plane, merely by the characteristic property of a concave moulding, as already pointed out, to give a defined line of shadow. It might be observed also that in countries with bright sunlight there was usually a tendency to depend for effect on broad surfaces, with a few strong shadows, rather than on a multiplicity of mouldings; and we found the mouldings grew more numerous and were cut deeper and more boldly, as we came from southern to northern latitudes. Some profiles of Egyptian capitals were also pointed out as showing the same characteristics as the other mouldings of the country,—simple profiles and broad surfaces.

Coming to classical mouldings, a diagram was shown of the profiles of the principal classical mouldings as commonly adopted in modern times, with the names, swept up from various languages, which had come to be applied to them; the *ovolo*, or convex quarter-round, and *cavetto*, or concave quarter-round, both named in Italian; the *cyma*, which was a Latin form of the Greek *κῦμα*, "a wave," appropriately given to a form which consisted of two reversed curves forming an undulating outline, this moulding being classed (in Latin) as *cyma recta* when the concave portion was uppermost and *cyma reversa* when the convex curve was uppermost; the *torus* (Latin, "a rope"), a half-round projecting member; the *scotia* (Greek, *σκοτία*, "darkness"), a concave moulding, sometimes a concave half-round (the reverse of the *torus*), more often a compound or elliptic curve, which was constantly used in Classic bases to give a shadow between the projecting members, hence its characteristic name; the *astragal* (Greek, *ἀστράγαλος*, "the vertebra" between the head and neck), a name probably adopted in consequence of the usual position of the astragal as the necking of a column, perhaps also in reference to its shape as a small rounded member (really a diminutive *torus*), a second meaning of astragal being a small bone; and the *fillet*, which was simply a narrow strip of flat surface, used to divide other mouldings or to mark the junction between a group of mouldings and the plain wall-surface. These names had become so generally used in building that it was as well to know them, though, of course, they were of no real consequence to the subject. Among these mouldings the *torus*, the heaviest in appearance of all, was mostly restricted to use in bases, and the *scotia* nearly so in orthodox "Classical" practice; the *cavetto* and the *cyma recta* were mostly used as crowning mouldings, though a small *cavetto* might be, and sometimes was, used as a supporting member, but appeared somewhat weak in that position; the *ovolo* and *cyma reversa*, having more of a bracket form in their outline, were generally used to support other members; though the *ovolo* was sometimes used as a crowning member where a rather heavy and powerful effect was aimed at. These members, under these titles, had formed the stock-in-trade of the orthodox Classical designer since the Renaissance, but it would be quite a mistake to suppose that they summed up the mouldings of Classic architecture. On the contrary, when we turned to the Greek, which was the *real* Classic architecture, we found mouldings of great variety and great delicacy of curve not by any means represented by the orthodox patterns, but to a great extent formed on curves of a higher order, not on circles, but on curves of the conic section class, especially the ellipse and hyperbola. The formation and character of these curves were described, and a practical method of tracing the hyperbola was illustrated.

The remainder of the lecture was mainly occupied in going through diagrams of the profiles of mouldings of Greek, Roman, and Gothic type, many points in which served to illustrate the principles previously laid down as to the treatment of mouldings. The two cornices of the Parthenon, the straight and the raking cornice, shown in full-size sections, served to illustrate the massive effect, combined with much delicacy of detail, in the mouldings of this building; and sections of various entablatures, cornices, and bases were shown, exhibiting the degree of variety which might be displayed in the treatment of mouldings all laid out according to the same general idea. The Greek mouldings also, it was pointed out, showed in their treatment the evidence of having been designed for a fine, hard, close-grained material, like marble, yet one in which it was not difficult to worked curved sections of the greatest delicacy and refinement. The variety possible in the treatment of what was called the Attic base was specially pointed out in sections of bases from Greek and Roman buildings. Sections of the entablatures of the Pantheon, Antoninus and Faustina, Jupiter Tonans, and other Roman examples, exhibited further the possible variety in the treatment and grouping of mouldings, the various sections of the frieze and corona, &c., while these examples also brought out the inherent difference between the powerful, effective, but coarse work of the Romans, and the refined profiles adopted by the Greeks. The distinction in the character and profile of mouldings employed in columnar capitals and bases, and those used in imposts in connexion with the same columnar order was also exhibited, and some sections for Tuscan entablatures by Palladio, Scamozzi, and Serlio showed examples of the designing of mouldings to obtain a marked character of simplicity and massiveness; Serlio employing a large *ovolo* as a crowning member of the whole cornice with this object. The typical section of a Roman archivolt was shown, with the moulding entirely on the face of the arch, and with a flat soffit; and this led to a contrast with the typical Gothic form of arch in recessed courses, shown first in its simplest form as composed of squared stones, and then by successive examples, mostly full size, of the mouldings of the Norman, Transitional, Early English, and Decorated periods, with one or two examples of late Gothic showing the decline of moulding in the later period, and the weak ineffective sections and large shallow sinkings that were used in the decay of the style. The bold rounded character of the projections and hollows in Gothic mouldings was another exemplification of the influence of material, for these were exactly the kind of sections to be suitably worked in comparatively soft and coarse-grained stone, just as the thin edges and fine lines of the Greek mouldings were suitable for execution in marble. A further influence of material might be traced in comparing Gothic mouldings, as executed in wood, with mouldings of the same type when executed in stone, when it would be found that the section of the hollow mouldings was usually different in wood from that used in stone, being rather a deep cut than a round hollow, the latter form being difficult to work in a fibrous material like wood, and where undercutting was desired. The different method of working the mitres of wood and stone mouldings was explained and sketched, and a cymagraph (kindly lent by Mr. Stanley) was exhibited and its principle explained, as a method of obtaining the sections of mouldings full size and with exactitude. In the course of the lecture Mr. Statham remarked on the fact that although recently it had been recognised that it was desirable to get full-size sections of mouldings, and a great number of Gothic mouldings had been drawn and published full size, yet of the more refined mouldings of Greece scarcely any full-size sections had been published or were obtainable.

[The subject of Gothic mouldings received some valuable illustration from a number of full-size plaster models of mouldings now being worked for a large church in course of erection in London, lent by Messrs. Dove, the contractors, with the permission of Messrs. Goldie & Child, the architects. Thanks were equally due to Mr. J. Oldrid Scott and to Mr. A. E. Street, each of whom had kindly lent some examples of full-size sections of modern mouldings as executed,

but which it was impossible to hang owing to the limited accommodation for hanging diagrams at the London Institution; a defect which should be rectified. There is wall space enough there for hanging double the number of diagrams shown on this occasion, but no provision for making any use of it; and in cases of this kind, where the adequate illustration of a subject depends upon the exhibition side by side of a great number of examples, want of wall space is a serious drawback.]

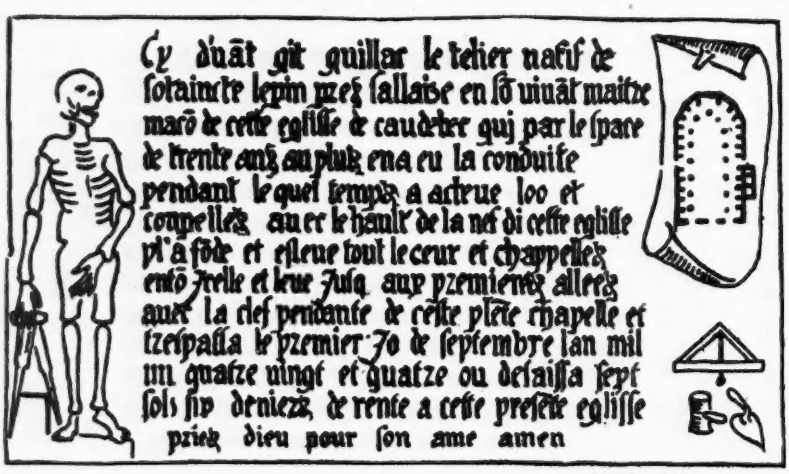
Illustrations.

SPIRE, CAUDEBEC.

WE gave the other day a view of a street in the picturesque town of Caudebec (see *Builder* of Jan. 21), in which the east end of the church appeared, from a drawing by Mr. F. Williamson. We now give a view of the very peculiar spire, as restored recently, taken from a photograph. A photograph of the previous state of the spire, which is before us, shows that the two enriched string-courses, like coronæ, round the spire were in existence and nearly intact; the vertical pierced ornament was all broken away, except on the upper portion above the uppermost string-course, but there it was in good preservation, sufficiently to show the design clearly, and the restoration is probably quite correct, as there were indications left also where the stone had been taken away.

The church, which is very rich in stained glass, is of Flamboyant work mainly.

The original architect,—one Guillaume Le Telier,—is buried in the easternmost or Lady chapel. His curious memorial stone is an incised slab of white marble, of which we give


Cy dūāt git guillaz le telier natif de
ſotaincte lepin prez ſallaize en ſō viuāt maiſtre
maſō de ceſte egliſſe de caudebec quj par le ſpace
de trente anz au plus ena eu la conduite
pendant le quel temps a actrue loo et
compelles au cer le hault de la nef di ceſte egliſſe
pl'a fode et eſleue tout le ceur et chappelles
entō ſcelle et leur ſuſq aux premieres allees
auec la clef pendante de ceſte plete chapelle et
tzeſpalla le premier jo de ſeptembre lan mil
im quatze vingt et quatze ou delaiſſa ſept
ſols ſip deniezz de rente a ceſte preſente egliſſe
priez dieu pour ſon ame amen

C.H.T. del.

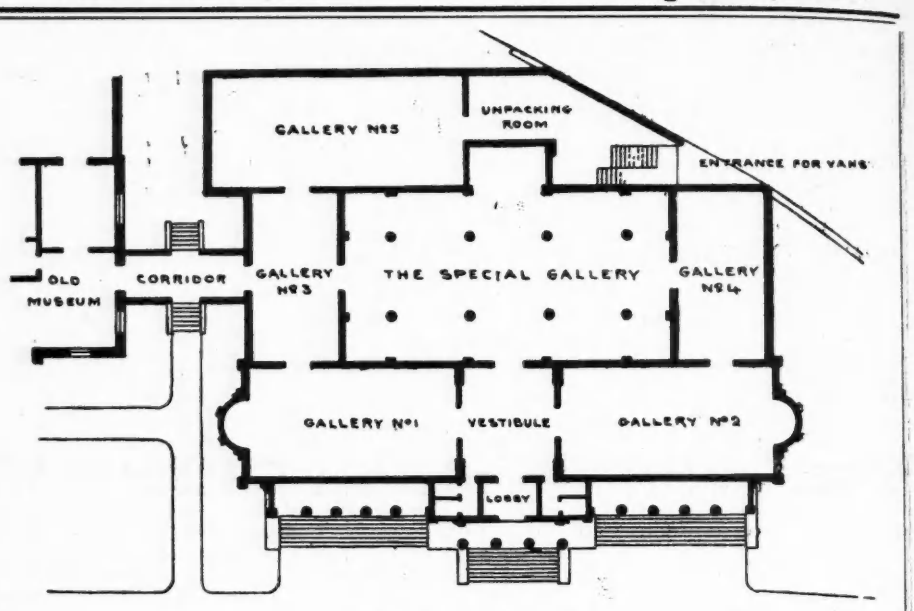
an illustration; the inscription may be thus rendered:—

"In front hereof lies William Le Telier, native of Fontaines Lepin near Fallaise,—during his lifetime Master-Mason of this Church of Caudebec,—who for the space of 30 years at least has had the management thereof, during the which time he finished the tower (?) and turrets together with the whole height of the nave of this church. He, moreover, founded and built all the choir and the chapels, amongst them this one, raising them to clearstory height (?) together with the pendent boss of this very chapel, and passed away the 1st day of September, 1484, when he left 7 sous 6 deniers a year to this present Church.

Pray God for his soul: Amen."

THE MAPPIN ART GALLERY, SHEFFIELD.

WE give an illustration of the exterior of this Gallery, which was given to the town of Sheffield by the late Mr. J. Newton Mappin. The building, which, it will be seen, is a modern adaptation of the Greek Ionic style, is from the designs of Messrs. Flockton & Gibbs, architects, Sheffield. The front is faced with ashlar work in stone from the neighbourhood of Huddersfield, and the sides and back with Grenoside stone. The floor of the galleries is on a level with that of the Museum, the two buildings being connected by a corridor. The central gallery is 75 ft. long by 39 ft. wide, and there are five additional galleries, one 58 ft. by 25 ft., two 48 ft. by 25 ft., and two 39 ft. by 20 ft. The vestibule, 25 ft. by 22 ft., is intended for the exhibition of sculpture, and accordingly is designed in severe lines, and with a lofty ceiling, which is panelled and supported on carved wood cantilevers. The frieze bears the following inscription on three sides:—"This building and the pictures in the central gallery were bequeathed to the town of Sheffield by John Newton Mappin"; and on the fourth side, "Opened in 1887."



Plan of the Mappin Art Gallery.

The central gallery is devoted exclusively to the exhibition of the collection of pictures bequeathed by Mr. J. Newton Mappin; and, as the number and size of the pictures were fixed and known by the architects, they have been specially provided for in a series of bays, each with its separate ceiling light, arranged on both sides of a hall. The hall, along the sides of which are the bays above mentioned, is in the form of a cross, the ceilings of the arms being arched with deeply-recessed panels, with blue ground and gilded ornaments; and the centre of the cross is covered with a cupola, similarly panelled and decorated,—the whole supported on an entablature and eight columns of Irish red marble. In the centre of the gallery, and directly under the cupola, is to be placed the Florentine bronze, forming part of the bequest, on a pedestal of ebonised wood, around which is an octagonal seat of the same material; other seats are placed, one in each bay. The additional galleries, five in number, are of the ordinary rectangular form with ceiling lights, and are arranged *en suite* with the central gallery, but so that either can be used independently of the other. The decoration of the walls throughout is in dark rich tones, so as to show pictures to the best advantage, and the floor tiling has been specially designed to harmonise with the walls. The gas lighting is by Siemens's patent regenerative lamps. The lamps have been manufactured by Messrs. Guest & Chrimes, of Rotherham, and fixed by the Sheffield Gas Company, who have also laid the pipes for heating and ventilation. Messrs. Newton, Chambers, & Company have supplied and fixed the heating apparatus, which is in a fireproof cellar, with iron doors, and has a flue of solid fire-brick the whole height of the building. The unpacking-room and store-rooms are shut off from the galleries by an iron door, and each end of the corridor between the galleries and the museum has iron doors. The cost of the building, including architects' commission, clerk of works' salary, &c., has not, we are informed, exceeded the 15,000*l.* bequeathed by Mr. Mappin for the purpose. Messrs. William Bissett & Sons were the contractors for the building, and the work has been done by their own workmen, aided by the following sub-contractors:—Messrs. Newton, Chambers, & Co. (Limited), ironwork; Mr. F. Tory, stone and wood carving and modelling of plaster and iron details; Messrs. W. G. Skelton & Co., ornamental bronze castings; Mr. J. Hadfield, marble columns; Mr. H. Foss, tiling, the tiles being Minton's; Messrs. Hart, Son, Peard, & Co., the turnstiles; Sheffield Water Works Company, the fire hydrants; Mr. R. Thompson, the locks. The decoration has been done from the architects' design by Messrs. Bissett & Sons, with Mr. Thomas West as clerk of works.

STAINED GLASS DESIGNS IN THE LAST ROYAL ACADEMY EXHIBITION:

DESIGN FOR WEST WINDOW, NEWCASTLE CATHEDRAL.

THIS was a design submitted by Mr. E. Frampton for the above-named window, the subject being the "Last Judgment." It shows two openings of the transome window to contain a series of Northumbrian saints,—those depicted being St. Nicholas, patron saint of the cathedral, and the Venerable Bede. These are designed as reproductions of the spirit of the best period of fifteenth-century glass. An arcaded canopy with crowns is added, with diapered backgrounds and screens.

The drawing from which the illustration is taken was exhibited in the Royal Academy Exhibition of last year.

DESIGN FOR A TWO-LIGHT WINDOW.

This is a sketch design for a two-light window in Late "Decorated" style. The figures represent St. Cecilia, the patron saint of music, and St. Dorothea, surrounded above by Cherubim, with another angel playing musical instruments in the tracery; garments green and purple, with blue; ruby ground. The inscription from Milton's ode, "At a Solemn Music,"—

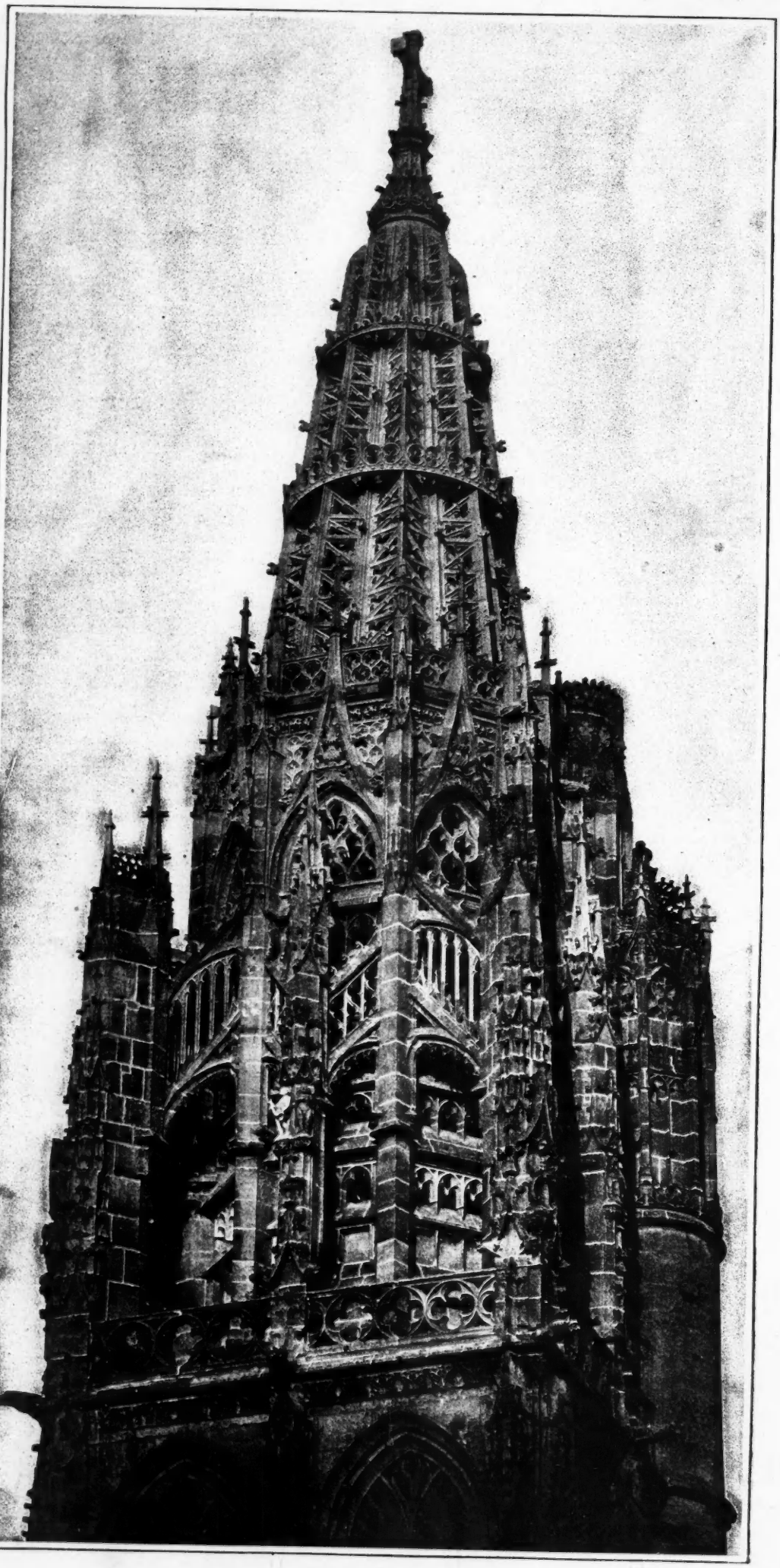
> "Keep in tune with heaven, till God, ere long
> To His celestial concert us unite,
> To live with Him, and sing in endless morn of light!"

The design is by Mr. T. W. Bladen, and was in the last Royal Academy Exhibition.

WINDOW, WEST CROYDON CONGREGATIONAL CHURCH.

This is one of the two-light west windows designed and executed in the Perpendicular style, late fifteenth century.

The larger subjects in each window run through the two lights. The first, as shown in the drawing, is the Adoration of the Magi; in the second window is Our Lord blessing children; in the third the three Marys and Angels at the Tomb after the Resurrection. Running through the three windows are six "Mercy works," — "Hungry," "Thirsty," "Sick," "Naked," "Stranger," and "In Prison." The canopies and arcading are entirely executed in white glass. The backgrounds are richly coloured in the large subjects.



SPIRE, CAUDEBEC: AS RESTORED.

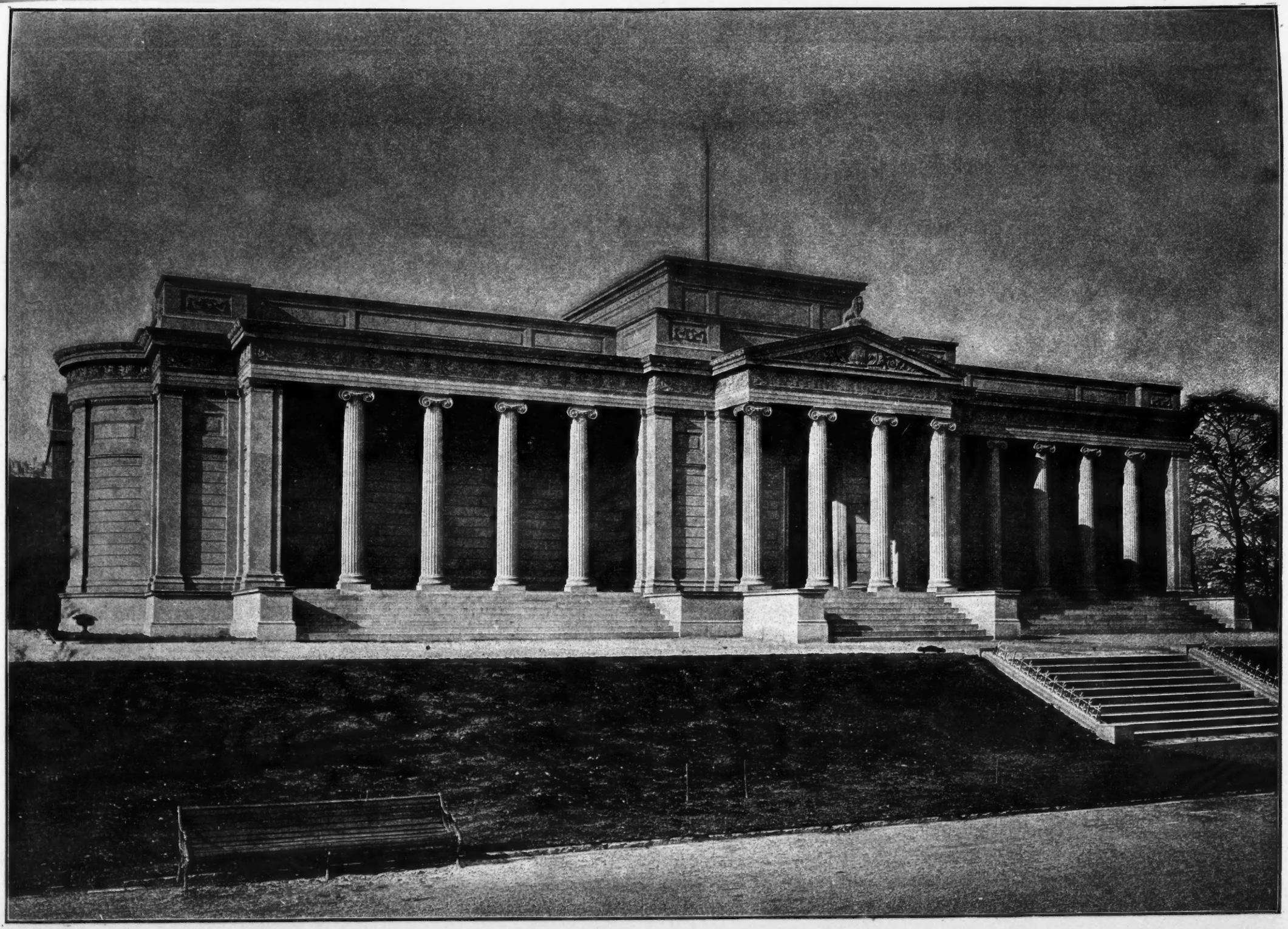
"INK PHOTO," SPRAGUE & Co, 22, MARTINS LANE, CANNON ST, LONDON, E.C.

George Godwin.

THE LATE GEORGE GODWIN, F.R.S., F.S.A.

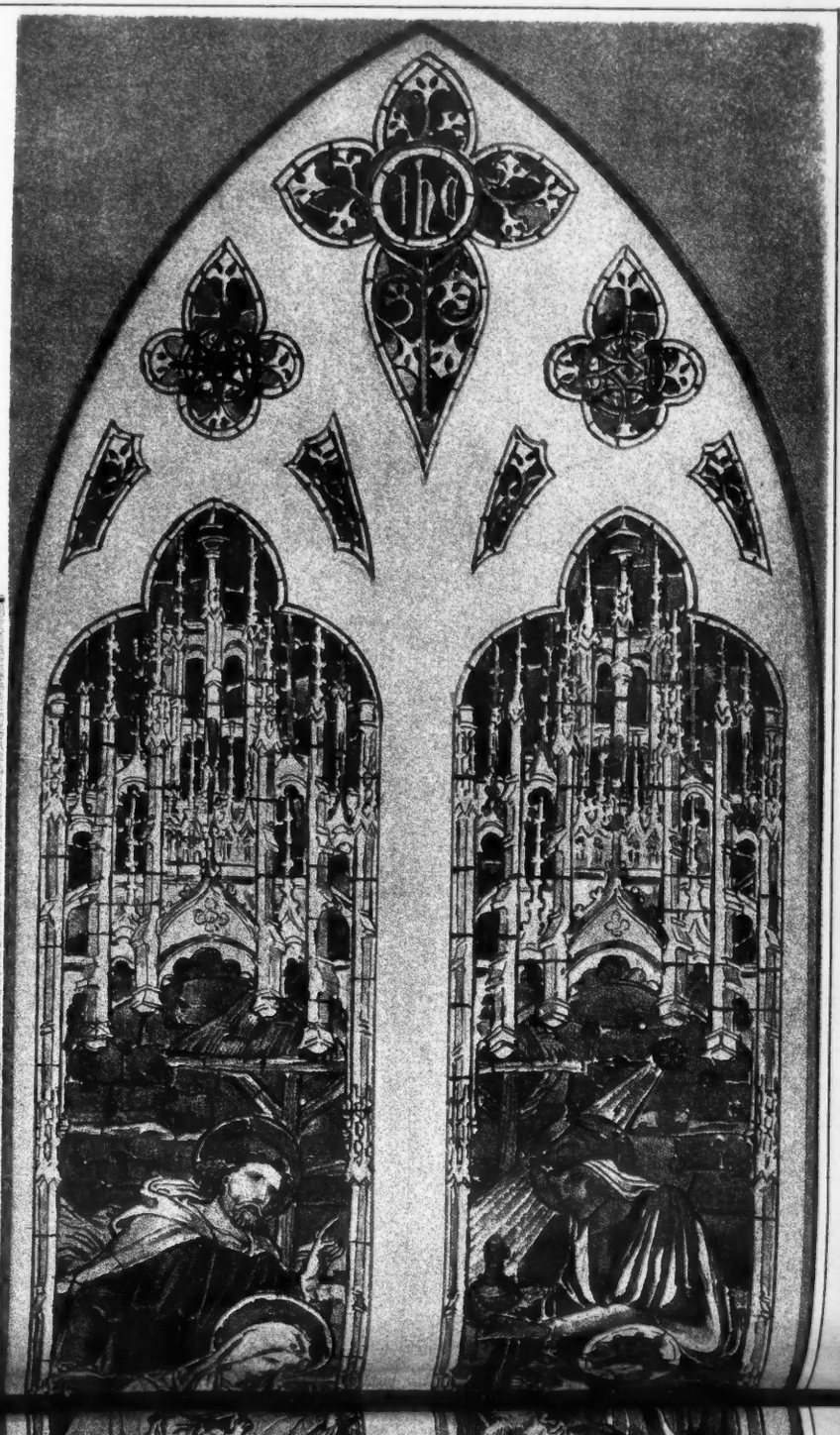
Editor of the BUILDER *from 1844 to 1883.*

Born January 28, 1815: Died January 27, 1888.



The Phototype Co., 303, Strand, London.

MAPPIN ART GALLERY, SHEFFIELD. MESSRS. FLOCKTON & GIBBS, ARCHITECTS.



PARTS OF DESIGN FOR THE WEST WINDOW, NEWCASTLE CATHEDRAL.

BY MR. E. FRAMPTON.

DESIGN FOR A TWO-LIGHT-WINDOW.

BY MR. T. W. BLADEN.

"INK-PHOTO," SPRAGUE & Co 22, MARTINS LANE, CANNON ST. LONDON, E.C.

ONE OF THE WEST WINDOWS, WEST CROYDON CONGREGATIONAL CHURCH.

DESIGNED AND EXECUTED BY MR. E. FRAMPTON.

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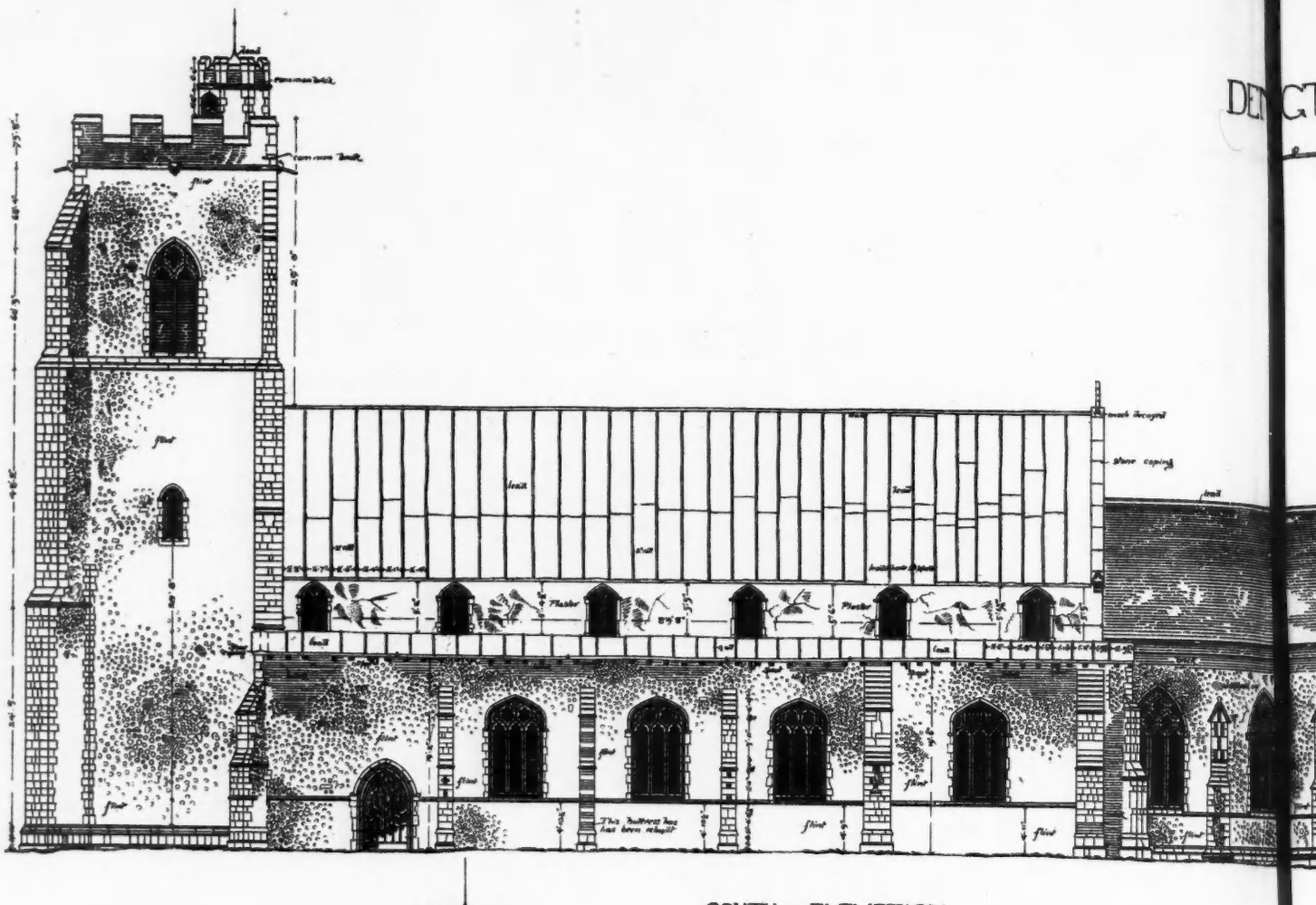


SOUTH ELEVATION

EAST ELEVATION

MEASURED AND DRAWN TO SCALE ON THE SPOT.—

THE CHURCH IS FA[CING] INTERMIXED WITH [FLINT] STONE BRICK AND [TILE]. THE STONE USED [IN THE MAIN] IS PRINCIPALLY CAE[N]

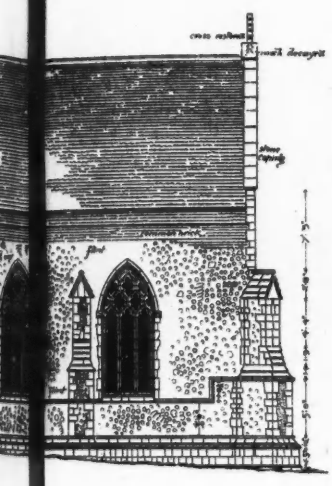
MEASURED AND DRAWN [BY]

R.I.B.A. Silver Medal, 1888.

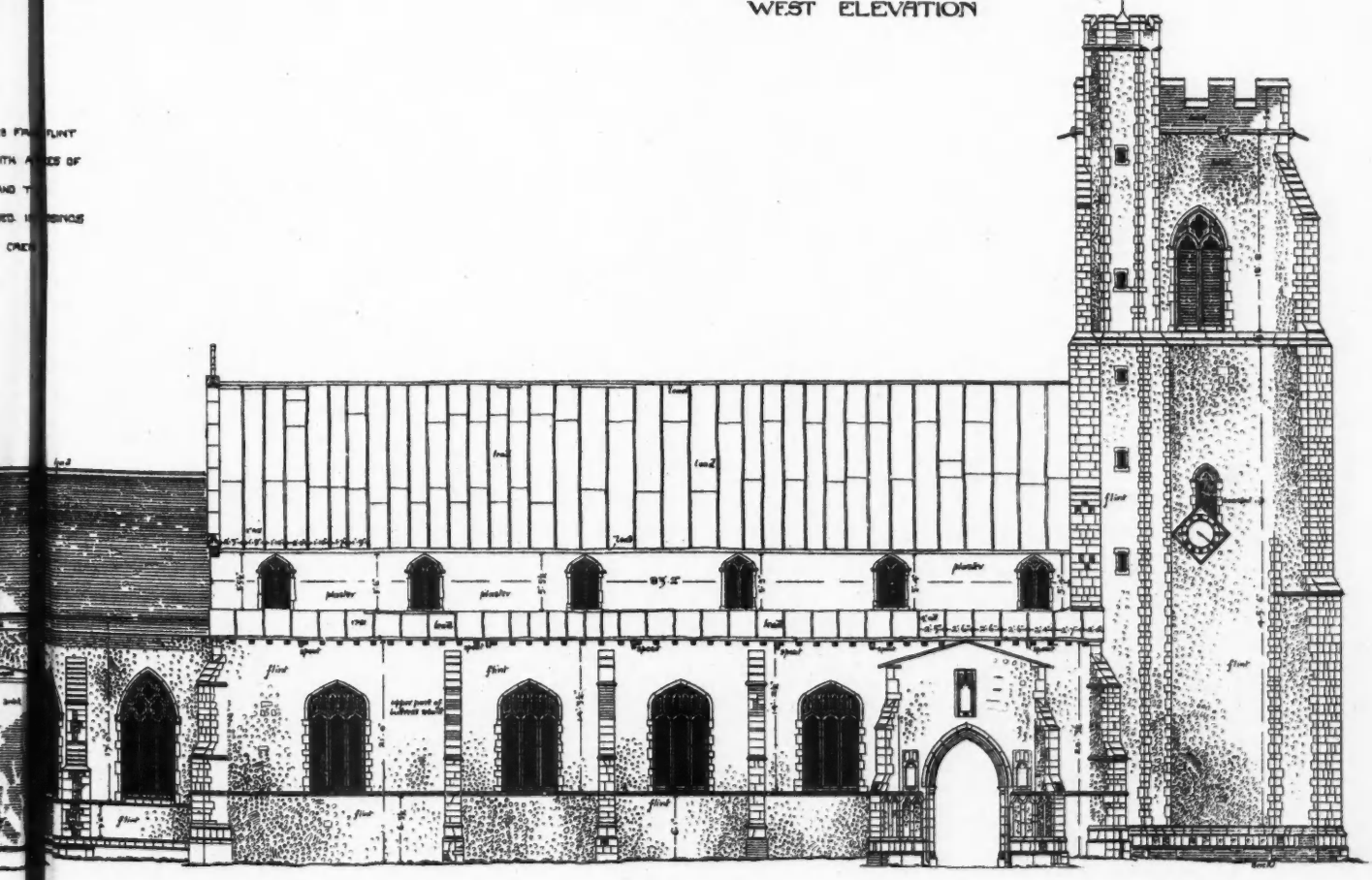
GTON CHURCH SUFFOLK

SCALE OF FEET

NOTE ALL STONE JOINTS FROM ACTUAL MEASUREMENT.

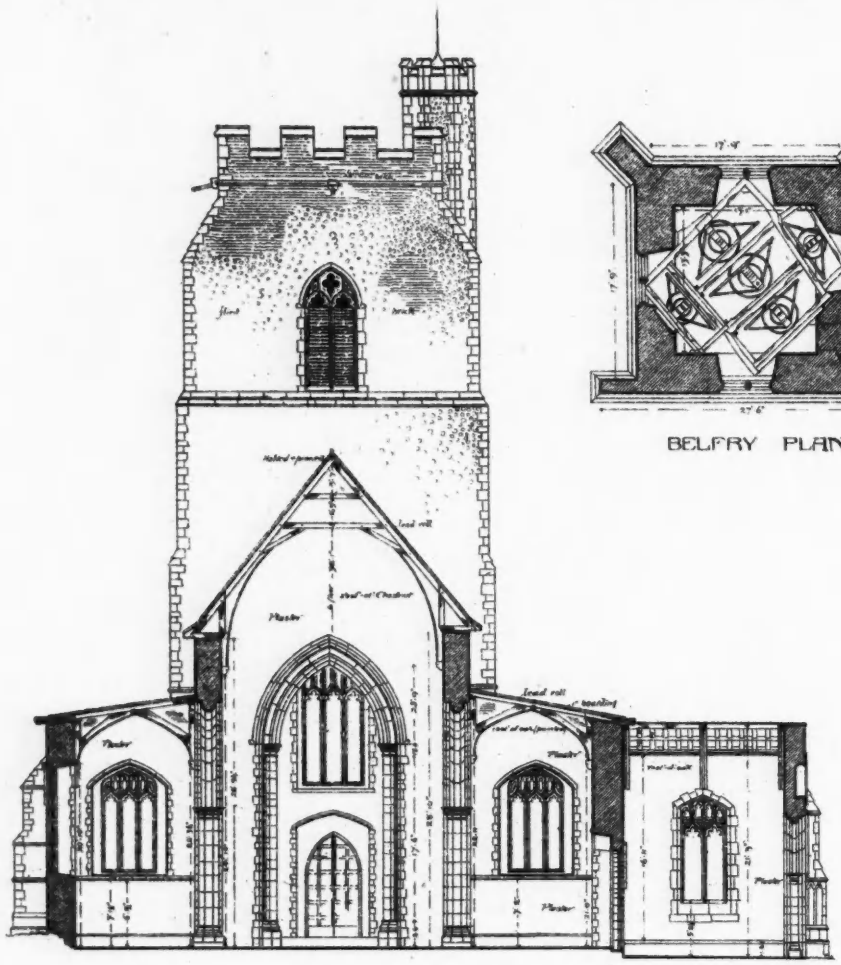


WEST ELEVATION

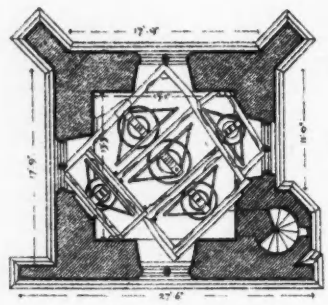


NORTH ELEVATION

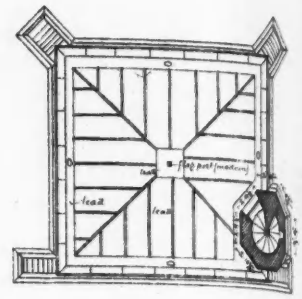
PHOTO-LITHO. SPRAGUE & Co 22, MARTINS LANE, CANNON ST, LONDON. E.C.



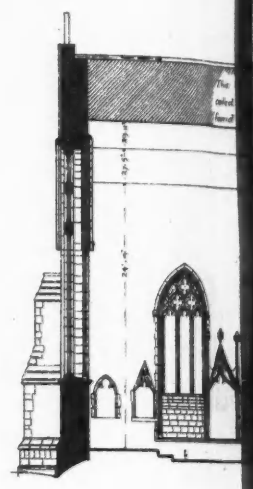
TRANSVERSE SECTION



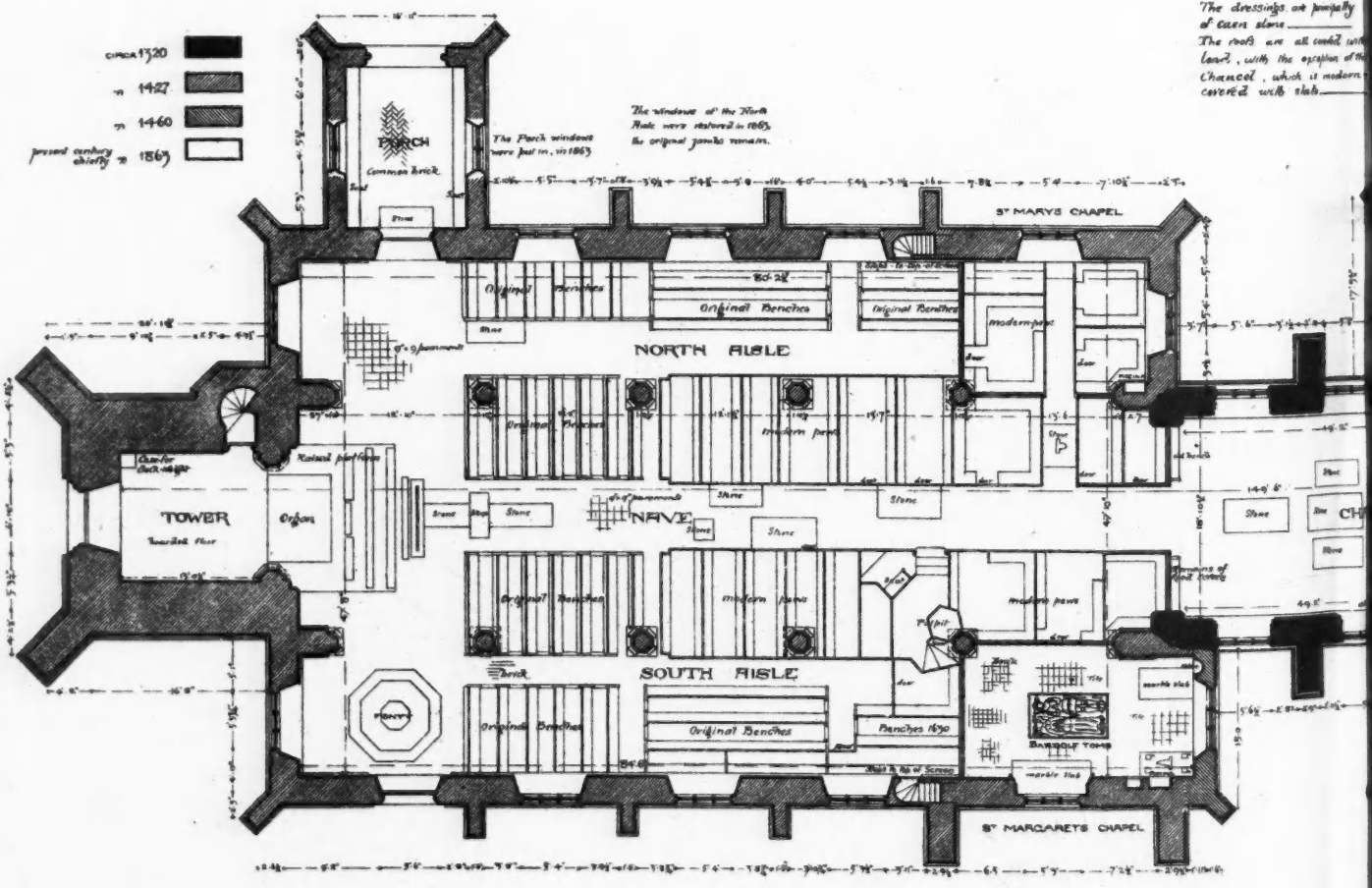
BELFRY PLAN



ROOF PLAN



The walls are of rubble faced externally with flint-finished inside with plaster.
The dressings are principally of Caen stone.
The roofs are all coated with Lead, with the exception of the Chancel, which is modern covered with slab.

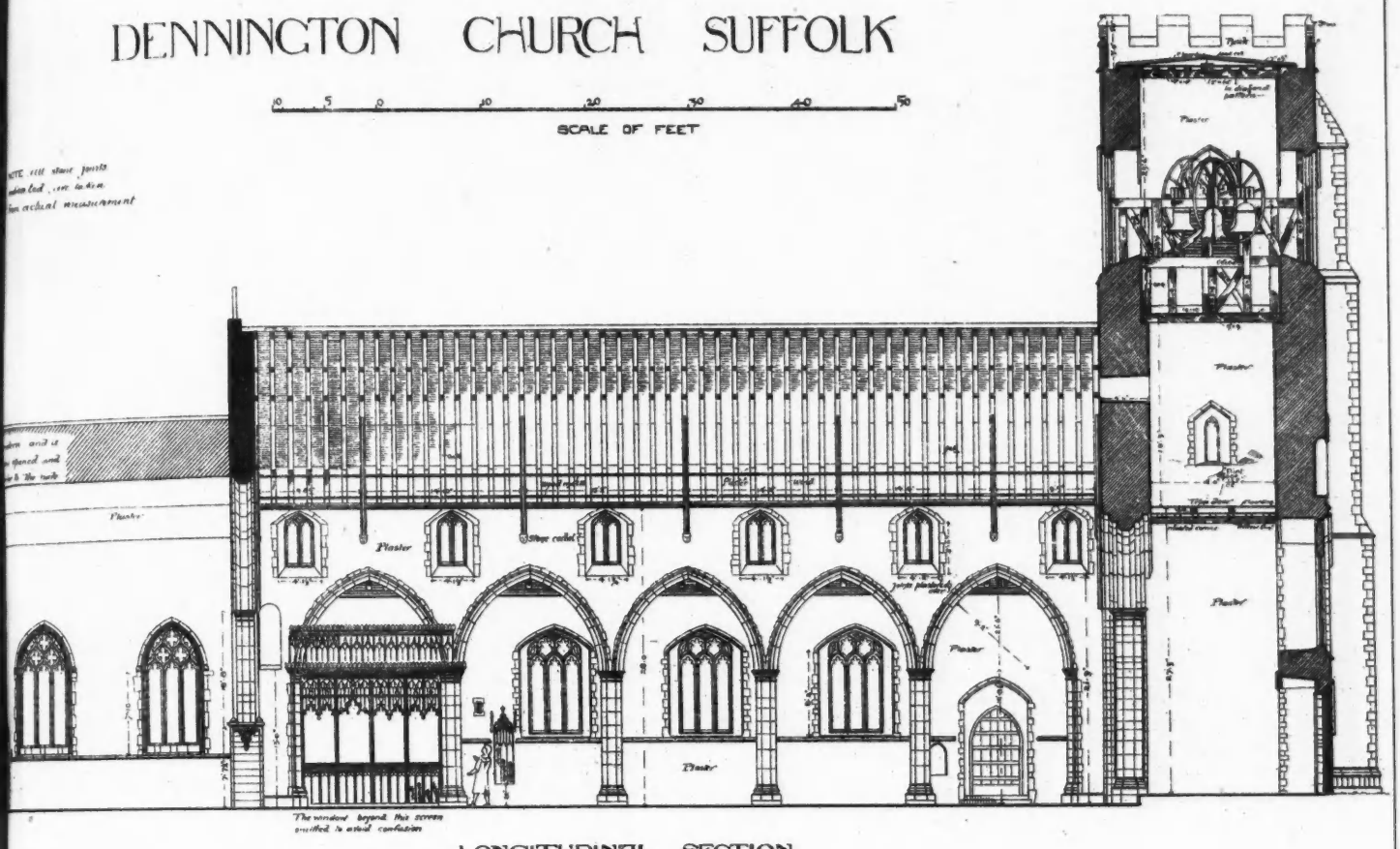


MEASURED AND DRA

R.I.B.A. Silver Medal, 1888.

DENNINGTON CHURCH SUFFOLK

SCALE OF FEET


Plaster
Plaster
Plaster

In the "Mercy works" the backgrounds are incidental to the subjects, either interiors or exteriors.

The donor is Mrs. P. A. Peacock, of Croydon. The windows were designed and executed last year by Mr. Edward Frampton.

DENNINGTON CHURCH, SUFFOLK.

THE drawings of the above church (dedicated to St. Mary), which we illustrate this week, show a fine specimen of a Suffolk stone and flint church.

In 1427, Sir William Phelip, afterwards Lord Bardolf (and Chamberlain to Henry VI.), founded a chantry here (St. Margaret's), which contains a very fine alabaster monument, decorated with colour, to himself and wife. The tomb was opened in the beginning of 1887, but was found to be empty, as well as the vault under. It is supposed the bodies were buried in the churchyard, as directed by a codicil in his will. The chantries of St. Mary and St. Margaret are enclosed by the finest screens in the county, which are in splendid repair, as, indeed, is the whole church, with the exception of the roof, which is in a very bad state.

Above the vestry is a priests' room, not long since used as a schoolroom, and still containing the original sand writing-table.

There are also standing in the church a very fine chest and an antiquated alms-box, cut out of a solid log of wood.

The drawings are by Mr. Harry Percy Adams, and obtained the R.I.B.A. first silver medal and ten guineas.

ELECTRIC TRAMWAY AT CHISWICK.

A SHORT length of a new line of electric tramway was on the Tuesday afternoon of last week shown in action at the depôt of the West Metropolitan Tramway Company at Chiswick. The principle upon which the new tramway is founded is that of direct supply of electric current from a fixed station by means of a main conductor laid along the whole length of the line. The novelty is in the way in which the current is taken off. The conductor consists of an insulated copper wire conveyed in ordinary iron gas-piping about 1 in. or more in diameter. As this gas-piping is also used as a portion of the main conductor, it is insulated by successive tapings round its exterior surface. The whole conductor is thus completely enclosed in insulating material. To obtain the current from it a series of small iron saddles are screwed through the piping into metallic contact with the copper core inside. The main conductor is laid in an iron trough or channel beneath the centre of the track, with a continuous narrow slit or opening in the roadway, presenting, in fact, the same appearance as the central slit familiar to those who have seen cable tramways. The car which has been fitted is an open one, having five seats with reversible iron strap-backs, after the fashion of the summer cars in use in Edinburgh and other places. The motor is boxed in under the floor of the car. Under the car also is a long bar, from each end of which a metal plate drops down and enters the trough by the longitudinal interspace in the central line of rails. Between these plates there is suspended a metallic chain formed of pieces of stout wire-rope, covered with short copper ferrules, each about 2 in. long, like beads, or, rather, bugles, on the thread of a necklace. This chain is not pulled tight, but has a considerable amount of sag, and thus presents the form of an inverted bow. As the bow of this chain makes contact with the iron saddles on the conductor laid in the trough, the electric current is tapped, and is then led by wires on the car to the motor, which it actuates; the electrical circuit being completed from the axles and wheels of the car along the lines of outer rails of the tramway.

This is the best mode as yet put forward for taking off the current. In the first place, all the mechanical parts are firm and strong; in the next, the contact is a rubbing one, and consequently the action of use is to keep the contact surfaces always bright and clean. Further, as the bow of the chain enters three or four of the saddles at a time, there is ample conduction for the current, and little or no sparking. There is a great advantage in taking off the current by the saddles, for their small exposed surfaces afford slight means for the leakage of electricity.

The current supplied in the trial was of the power of 11 ampères at an electro-motive force of 230 volts. It was generated by a small dynamo-machine driven by an ordinary horizontal engine.

The cost of the central channel and conductor for such a tramway is estimated at about 2,000*l.* per mile; and of course they can be easily added to any existing line. The cost of horses leaves scant room for profits being made on public tramways; and no comment is needed as to the saving which electricity is calculated to effect if it were properly and substantially applied. The West Metropolitan Tramway Company earned last year 5,000*l.* for dividends; but it is considered that if the Lineff electric system, under trial at their depôt, had been in operation, the savings would have yielded 8,000*l.* further to the good. We understand the Directors have determined to adopt this electrical system on their line between Hammersmith and Kew.

The cars, it may be added, are fitted with a protecting guard at each end suspended by levers; and if any person or obstruction should be on the tramway and be touched by the car, the guard will yield to the obstruction, and, by means of the levers, an electrical brake will be immediately put on, whilst at the same instant the motion of the car itself will be automatically reversed. The experimental trials in this and in other respects were very successful.

BRICKS AND THEIR MANUFACTURE.*

AMONGST building materials, bricks occupy a most important position in respect of economy, being handy and expeditious in use; as also on account of their importance in relation to the necessities of large populations for public works and residential erections. They are manufactured wherever practicable in close proximity to the places where they are required. In some districts, no material whatever is found suitable for brickmaking; in others, material from which only a weak and common quality of bricks can be made, suitable for partition walls which carry no weight, in order that they should not be tested beyond the limit of their crushing strain. Such bricks cannot, of course, be used in heavy engineering work, nor for lofty factories and public buildings. Architects and engineers, when drafting their specifications, keep in view the class of bricks obtainable in the neighbourhood where they are required; and if these are found unsuitable, they will insert a special clause that the bricks used shall be of a certain manufacture or of equal quality. I have seen a large building, not far from Glasgow, in which all the bricks (some hundreds of thousands) used were specified and obtained nearly 300 miles away, because it was considered that the bricks in the surrounding district were of too inferior a quality for the work. I have also known many other instances of importation from great distances, for the like reason. What are called Staffordshire blues, buff facing bricks, and enamelled bricks, are in very extensive use. The first-named are mostly employed for pavements, damp foundations, and heavy engineering work. The natural buffs, from their fresh and warm colour, are used where they will be free from discolouration by a sooty atmosphere. The enamel bricks will no doubt grow in favour from their brightness, which may almost be described as perennial, thus increasing the light of the rooms, of dark passages, and other similar places, when walled therewith. Their artistic effect is also very pleasing to the eye. These classes of bricks are often of necessity brought from long distances, on account of the rarity of the material from which they are produced, and which is found in exceptional positions, as also because costly plant is required for their manufacture. Thus a prospect of large demand is necessary to render such an outlay commercially profitable.

There is great variety in the characters of bricks made in different districts. In the tract of country from the South Coast inland, commencing in Berkshire and extending over Sussex, Essex, Kent, Suffolk, and Norfolk, and also further inland to Cambridgeshire and Hertfordshire, there is to be found practically one kind of material for brickmaking. It is lean and sandy, and produces bricks that, although at first dull in sound and of very weak crushing strain, yet with time and exposure become dense and strong. These are very extensively used in London and elsewhere for the largest erections.

Further round the coast northwards, and extending widely inland, there is an alluvial deposit the bricks from which are fine in texture, dense, and non-absorbent, and will bear a good crushing strain.

In counties further inland there is greater variety, from rich alluvial and argillaceous materials to soft and hard marls, from each of which are produced bricks of different qualities.

In Lancashire, commencing at Preston and extending to the Manchester district, and taking in the whole belt of country to the sea from the Mersey to Fleetwood, there are found, with but few exceptions, in some cases a moderately rich alluvial deposit, in others a much leaner kind, but in a greater or lesser degree impregnated with lime nodules and cakes, which, when made into bricks, produce a most unsound and weak quality, bearing only a very light crushing strain.

As a good strong dense brick is a necessity in every district for the various works of erection, any contrivance or invention whereby such a brick can be produced from the prevailing material must be a distinct advantage. It was with a view to accomplishing this that I have for a considerable time past devoted my earnest attention, with a result which I trust to be able to prove is eminently satisfactory.

My attention was drawn to this subject by an engineer of considerable experience and standing in Dublin. It is very notable that in the neighbourhood of Dublin, and for a considerable tract of country surrounding that city, as well as in many other parts of Ireland, the superficial formation, where it is not rocky, is a weak, earthy, and only slightly alluvial material, containing from 20 to 30 per cent. of lime, which is fatal to the production of sound bricks. This gentleman had proved that by crushing this material to a very fine powder, mixing it with water, tempering it thoroughly, and making it into bricks, then subjecting them to high heat, the lime becomes silicated and forms a flux, which causes the whole to become one conglomerate body, which is hard, strong, and of a vitrified character, capable of sustaining a powerful strain. His difficulty has been to produce these results with sufficient economy to render the manufacture of bricks a commercial success. To solve this problem he communicated to me the whole of the details of his experiments, and showed me the results obtained, which were most surprising for such a material: he had, in fact, proved that a high quality of brick could be produced from it, and what he required from me was the means of rendering the manufacture commercially successful. He sent me a quantity of material containing 25 per cent. of lime in a powdered state. My first experiment was with what I call my "A" machine, which belongs to a class of which there are several others, which take the dust moderately damped and deliver the bricks in what is called a semi-plastic state, to be taken direct to the kiln without any intermediate drying. These bricks when burnt came out of the kiln in good form and sound, and were taken into the office and kept dry. Notwithstanding this, within a fortnight they had fallen to powder, and the experiment proved a complete failure.

I then tried another lot of the same material in what I call my "B" machine, with entire success. The bricks made by this process were laid on the damp ground, exposed in the open air through all the rains and snows of last winter, with the result that they not only retained their soundness, but seemed to have been improved by the exposure, showing a most remarkable difference to the results from the other process. It may be useful to explain the operations of the two machines to which reference has been made. The management of the "A" machine is very simple. The clay is fed in its granulated state into a hopper, at the bottom of which a ram works horizontally, pressing the material into a mould, which, when charged, removes into position for being discharged, and the brick is finally finished in the lever steam press.

The action of the "B" machine is as follows: The clay is fed in its granulated state into the end of a cylinder which is partially open; it is carried forward the whole length of the cylinder, being at the same time subjected to high fric-

* A paper by Mr. William Johnson, of Leeds, read before the Inventors' Institute on Monday, January 23rd.

tional action, thus thoroughly expelling the air, kneading the particles, and binding them together, so that it becomes one stiff and conglomerated mass; it is fed in that state direct into the mould, which, when sufficiently and densely charged, removes into position for being discharged, and the brick is finally finished in the lever steam press in the same way as by the "A" machine.

The bricks in both cases are taken direct to the kiln without any intermediate drying. The traverse of the clay towards the mould is continuous. As soon as the latter is sufficiently charged, and while another mould is coming into position, the stream of surplus clay is automatically discharged back into the hopper of the machine. Thence it is again brought forward in the same way; and by this action overstrain in the machine is avoided, and the clay is improved by repeated action.

Having obtained such satisfactory results, the next step was to design a complete plant for carrying on the process with due economy. This character of clay is invariably of a soft and plastic nature, and must be first dried before it can be reduced to powder. For this purpose I adopted a revolving cylinder 27 ft. long by 5 ft. in diameter. This is filled with an intense heat of from 700° to 1,000° produced by gas, for generating which I have adopted with success the "Patent Twin Gas Producer" of Mr. B. H. Thwaite, of Liverpool.

The clay is brought up from the clayhole in the ordinary way by hoisting, tipped into a hopper, where rotates a winged valve, forming a series of pockets, which, as they come into position, are filled with clay, and each in turn discharges its load into the revolving cylinder, and the clay thus begins its traverse through the whole length of the cylinder, taking about thirty minutes to accomplish the journey. During all this time it is being subjected to the intense heat therein, the moisture thus being completely expelled. The thoroughly dry clay is then delivered at the lower end of the cylinder by a shoot into a perforated edge-runner grinding-mill, whence it is elevated into a revolving sieve. The fine powder drops through the sieve into a hopper, and the coarse is returned again to the grinding-mill to be re-crushed. The powdered clay then runs in a constant stream into a double-shafted and differential mirror, where the necessary water is added; then into the brick-making machine and steam lever press, and the bricks, as they are discharged, are placed upon a bogie and taken direct to the kiln. We have erected a plant of this design in Lancashire, where the clay is so largely mixed with lime that it was impossible to make other than a most inferior brick; but by this process a very high-class brick is produced. The progress of the clay may thus be traced from the earth to the kiln; it occupies about forty minutes in time. The whole cost in labour by this process, from the digging of the clay to the delivery of the bricks, burnt and finished, into the wagons, &c., does not exceed 5s. per thousand. In cases where the clay is naturally dry enough to be ground to powder, the drying cylinder is dispensed with, as the clay may be tipped direct into the grinding-mill, and the cost of production to that extent is reduced.

The process described can be applied to all kinds of naturally plastic clay in the production of high-class bricks with great economy. A sample is shown of bricks thus made from a rich and fine sedimentary clay found between Hartlepool and Sunderland, and this production will be a special boon in those parts where from various circumstances it has heretofore been impracticable to make other than a most inferior quality of brick.

There is another new departure in which I claim complete success, viz., the manufacture of fire-bricks by machinery. There has always been strong prejudice against bricks intended for refractory purposes being made by machinery. This has arisen from repeated failures, the bricks made having been either too loosely bound together, or too densely formed. If the former, they were too friable and porous; if the latter, the contraction in cooling caused them to crack and break to pieces. Consumers were thus prejudiced against all other than hand-made bricks. I have now proved it possible to produce by machinery a brick superior for resisting heat to the handmade brick. The necessary plant is simple and requires little power. It consists of an ordinary edge-runner grinding-mill, in which the clay is crushed; thence it is elevated into a differential double-shafted mixer, where the water required is added; thence it drops into a hopper of the brick making and pressing machine, containing double moulds, making two bricks at once, which machine is both self-feeding and delivering. The clay is fed into the hopper of the machine in a damp and granulated state. At the bottom of the hopper is a bottomless box, which is filled with clay, and travels over the two moulds, which are sunk below the surface of the table. The charger passes over them, empties its load of clay, and remains over them while a heavy-pressing head drops with its own weight upon the body of clay in the charger, and insures the moulds being properly filled. This head is then withdrawn, and allows the charger to return again under the hopper for a fresh load of clay, during which time the pressing head drops a second time with its own weight upon the already charged moulds, and rests there to allow two further powerful pressures to be given to the bricks in the moulds. The head is then raised, and the bricks being automatically lifted out of the moulds level with the table are pushed away by the returning charger, to be placed by the attendant boy on to a bogie, and taken direct to the kiln without any shedding or drying. Examining the bricks thus made when burnt, it is difficult to distinguish them from the best hand-made fire-bricks.

The whole cost of labour in manufacturing these bricks does not exceed 5s. per thousand, and shed-drying is saved altogether. The cost of the plant is slight compared with the cost of the ordinary plant, and a larger output is obtained with a very moderate outlay and a compact plant.

I have two plants of this kind now in successful operation, and I am assured that the bricks made by them are preferred at glass and gas works and also by iron and steel manufacturers to hand-made ones. It will, no doubt, require time to remove a prejudice which has existed so long and is so universal; but, like many other old prejudices, it must give way before stubborn facts and an assurance of increased profit.

I wish also to put before you another new process for the production of plastic-made bricks, which is covered by two patents, but would be more properly named semi-plastic. Its object is to produce a high-class engineering or facing brick with the same economy as by the so-called semi-dry process. The latter process obtained great favour some fifteen years ago on account of the moderate cost of production, and also for the smooth and square form of the bricks made by it; but the experience of a few years has proved bricks of this kind to be deceptive, from their porosity and light crushing strain and their tendency to disintegrate by exposure to damp. There are some few highly bituminous clays which will give good results by this process, but such material is very exceptional, and the result is that this class of brick is almost universally condemned both by architects and engineers, and has almost entirely gone out of use in many parts where it had previously been in favour.

Another mode of making bricks has also been adopted which deals with the clay in a somewhat damper condition, and consequently produces more densely-formed bricks; but on account of the way in which the clay is dealt with in the brick-making machine it is but slightly different from the dry process, and does not remove the objection which attends it.

I had noted the growing dissatisfaction with the dry-made bricks, and for two years experimented with a view to produce a high-class engineering and facing brick with equal economy. After many reverses, disappointments, and also many prophecies from others of ultimate failure, I succeeded beyond even my most sanguine expectations. The like class of brick has been produced by another firm, who have advertised it largely as their peculiar speciality, and I am willing to accord to them great credit for having demonstrated that a brick of this character could be produced. But they had accomplished this in a roundabout way, and, considering the excessive power required, the wear and tear of plant, and its limited application in consequence of the few clays that could be dealt with in this way, their success was of doubtful value and most delusive. Another firm of brick-making machine manufacturers also made an attempt to produce this character of brick, but their machine was complicated and costly in working, and had one further defect which rendered it valueless compared with others, namely, that the brick it produced, although plastic, yet had to be placed on drying floors and dried previously to being taken to the kiln. This defect made an ordinary wire-cut machine greatly preferable.

The object I set myself to accomplish was not only to make a thoroughly satisfactory brick, but firstly, to do this with a simply-designed machine; secondly, with a minimum of expenditure in power; thirdly, to render skilled attention unnecessary; fourthly, to be adaptable practically to all kinds of clay; fifthly, to have the smallest cost in attendance upon it; lastly, that the machine should be such as could be exported for use in the colonies and in those lands where skilled labour is scarce and expensive. All these objects and advantages I claim to have accomplished. The machinery is self-contained, is exported fitted up complete, only requires to be placed upon a level and solid floor without any attachment to foundation, the power applied, and kept charged with clay, and bricks of the kind described must follow ready for taking direct to the kiln as they are discharged from the machine. I have already supplied several plants for carrying on this process, which are answering all expectations and giving entire satisfaction.

This process is particularly well adapted for making the best quality of bricks from colliery refuse, shale, and marls; in short, it is the only process that can be applied with success to almost every kind of brick-making material, and the exceptions are very few. The general quality of the bricks produced by it, and the great economy of production, cannot fail to lead to its general adoption as its many advantages become more understood and realised. The sample brick submitted, which is made from colliery refuse, shows the high quality which this process produces.

I have yet another new process to bring before you which dispenses with handwork for the sand-faced bricks that are so largely used in London and surrounding districts.

In a paper read by me two years ago* before this Institute I incidentally referred to it, and also exhibited drawings of a machine I had designed for this purpose, but I spoke of it then as an experiment not yet successfully finished. I found subsequently that I had to abandon that machine altogether, and after repeated failures I have now entirely succeeded, and expect that hand-moulding in this department must soon become a thing of the past. An ordinary pug-mill and wire-cutting machine is used, capable of turning out 20,000 bricks per day, which are taken from the cutting-off table and rolled in sand contained in a box placed in a convenient position; they are then passed into the pressing machine, of which the following is a description:—There are five moulds fitted to a circulating table which has an intermittent motion and is actuated by a pawl and ratchet disc worked by a connecting-rod from the main shaft. The moulds consist of loose sides which are hung by hinges; the brick is fed to the machine while the table is stationary, and is placed upon an iron pallet; the table immediately begins to move, during which the loose sides of the mould gradually close tight; this motion is got from a runner with which they are connected travelling along an inclined plane. The mould being brought into position the brick is pressed by a descending presser worked in a slide and actuated by a connecting-rod and pin from a revolving disc-plate. The brick being pressed, the mould-table again begins to move and the runner descending the plane actuates the sides of the mould, causing the mould to open on all sides, thus allowing the pressed brick to be removed and the mould to be thoroughly cleaned ready to recive another brick; and so the work continues, the bricks being taken to the hacks or drying floors. The sand is thoroughly embedded all over the smooth surfaces of the brick, which is finished in perfect form.

One press will turn out 10,000 per day, two being required for one brickmaking machine that will turn out 20,000 per day. For it are required the following attendants:—One boy at the cutting-table and four to each pressing-machine, that is nine boys to do the work which, by the old method of hand-moulding, would

* See *Builder*, January 30, 1886, p. 216.

require twenty men and twenty boys. Those experienced in this class of work must at once see the enormous advantage thus gained.

The manufacture of bricks from the waste of Welsh and other slate quarries has had a good deal of attention during the last three or four years, but the utilisation of this material for brickmaking purposes has not made the amount of progress anticipated. The cause of this is easily traceable by those acquainted with the subject. I have devoted a good deal of attention to it, and have designed a plant for the manipulation of this material, and am satisfied that if this manufacture were taken up with more spirit and earnestness, most important and profitable results would be obtained. The fine even surface and the firm character of these bricks, and the perfect form in which they can be moulded are such that they would no doubt largely, if not altogether supersede what are called rubber bricks, which, when ready for use, are worth probably not less than 10*l.* per thousand, whereas these could be placed in the market at 5*l.*, and which price would insure a most handsome profit to the makers. They would also be preferred where resistance to great strain was required, and for hydraulic work, on account of their density (owing also to their non-absorbent character). They would also be suitable as adamantine paviours, invert blocks for main sewers, and for many other purposes.

I have no doubt the time will come when the advantages of the peculiar properties of this material will be recognised and fully adopted.

I have here a sample of square building brick, and also a chequered paviour, made from pure waste slate taken from the Glogue Quarries, South Wales. I believe that a company is in course of formation, promoted by a highly respectable syndicate, who realise the commercial value there is in this material, and purpose to retain for themselves a large interest in the concern. It is, of course, of great importance that the quarry be favourably situated for the market. I am advised that this quarry is specially favoured in this respect, and therefore it cannot fail to be a highly successful undertaking. One great advantage in this material is that it is waste, and is already got to hand, and therefore to owners of quarries all royalty and cost of getting are saved. Then, by the plant which I have designed, there is very little labour required in the manipulation, and this labour is not necessarily skilled. So that, considering the many features of advantage this manufacture presents, it must sooner or later command the attention of quarry-owners and of capitalists. I am aware that the utilisation of the material for this purpose which has been attempted hitherto has been a disappointment. I was called in two years ago to advise a company who were already engaged in this manufacture and had been disappointed in their results. I was able to point out at once the cause of this, and some of the directors would then and there have set about remedying the defect, but there were others who acted as a brake upon them. I think now that even those who then hesitated are satisfied that their failure can easily be remedied, and the company are setting about doing what they ought to have done long ago. First failures in a new enterprise seem to be a necessity for bringing out the greater good, and I have no doubt that in the case of the company referred to their past disappointment will have had its lessons, which will be profitable in the future. Like many other disappointed people, their experience had fully demonstrated to them that there was the value in the material they had always imagined to exist, but they had failed to bring it out, and they each blamed the other for this, and thus vexation prevented them, as soon as they made the new discovery, setting about at once doing what was necessary. The remedy I propose is simply to continue what they have already begun. I retain all the means they have hitherto employed. My report to them was extremely brief, and may be given here in a few words now. They had done right so far as they had gone, but had not gone far enough, and my advice was simply to add. They had crushed the material to a powder, but not fine enough. I added an automatic sieve to secure fineness. Then their means of production of powdered material were not sufficient, and I added to this by introducing a pair of very high-speed smooth-faced horizontal crushing rollers, made of practically unwearable material. By adopting these I can afford to let the first crushing-mill part with the material much coarser, and so obtain from them a much larger production. The method they adopt for mixing the water with the material also is most uncertain and irregular. It is impossible for this material to thoroughly bind together unless it is made into one homogeneous mass, and the water be kneaded into every particle of it. To remedy this I have added a machine, of which I am joint patentee, which entirely succeeds in this. I also use the same or similar brick-making and pressing machine as they have used previously, but after the brick leaves this machine I further pass it through what I call a pressing and calendering machine, the moulds of which are heated, and which finishes the brick in perfect form, with glossy faces and sharp arrises. The brick is then taken to kiln in the same way as previously. It may seem that all these processes and manipulation indicate excessive cost in labour and in wear and tear, but the labour is not in any way increased. There will be a little more wear and also power required, but this will be trifling, while the increased production and the higher quality of goods produced will many times over compensate for this, and will make all the difference between a small loss as previously and good profitable returns under the altered arrangements. For my prophecy of success to be realised only the market for the disposal of the goods is required, and I am assured that there is no doubt on this score. All that is required is the quality and quantity, with an economical production, to insure its success.

I have pleasure also in submitting a plan of an arrangement of machinery which will supersede the costly, lugubrious, working plants so wasteful of power of the clay which have been so long peculiar to the Staffordshire district. In going through this district we are struck with the strong and lofty buildings and the heavy machinery, and the groaning wheels which are grinding along in their course overhead, and which require such massive engines to keep them in motion. These plants when kept in repair perform good work; but I have no doubt that by the plan submitted the same can be performed at a comparatively nominal cost, both in first outlay on plant and in subsequent working. For crushing and tempering clay, there is necessarily excessive wear, especially where the crushing surfaces are operated from fixed centres, and the wear must be constantly taken up, or the work is imperfectly performed. If I give a description of the existing arrangements of plant in general use, my designation of wastefulness will be at once apparent. The raw clay is hoisted to a height of from 40 ft. to 50 ft., where it is tipped into powerful toothed crushing rollers; from these into smooth-faced rollers; then through a third pair, also smooth-faced rollers; and thence it drops into a dished mixing-pan, 8 ft. or 10 ft. diameter, in which toothed drags and scrapers are circulating; then it passes into a vertical tempering pug; and in some cases through another pair of crushing-rollers, to be finally finished in a horizontal pug-mill.

In my arrangement I simply provide an edge-runner mill into which the clay is tipped; the edge-runners circulate in the pan, their weight lying dead on the clay, which is crushed, turned over, re-crushed, and turned over repeatedly as the runners circulate, until it becomes most thoroughly tempered. At one part in the bottom of the pan is fixed a grid, and as the runners pass over it, bringing with them the tempered clay, they press it through, and, dropping on to a travelling creeper, it is delivered into a pair of smooth-faced crushing rollers combined with a pug-mill brickmaking machine, where it is turned into finished bricks. For best pressed bricks they are fed from the cutting-off table into my patent lever steam-press; finished at one operation, placed upon the drying-floors, and not disturbed until they are dried and ready for removal to the kiln.

This simple arrangement of plant in the first outlay will be of very limited cost; the building required for it will be a mere one-story covering: the power nominal compared with the amount the existing plants require, and the work thoroughly well performed with less labour, and with practically no wear and tear. Its advantages, therefore, cannot fail to be clearly seen.

A summary of the new features in the manufacture of bricks which I have attempted to bring before your notice is as follows:—

1. Process for manufacture of bricks from weak clays which are largely impregnated with lime.
2. The manufacture of fire-bricks by machinery.
3. A new process for making a strong engineering and highly-finished facing-brick.
4. A process for the manufacture of sand-faced bricks.
5. The utilisation of slate waste in the manufacture of bricks and other goods.
6. A substitute for the existing arrangement of brick-making plants in Staffordshire.

The new features and advances which I have brought before you are not of so dazzling and striking a character as are many of the engineering successes that have specially marked out this generation, and have deservedly commanded a world-wide admiration. I regard myself as working in the lower stratum of engineering science, the smaller details of which go towards making up the vast whole of engineering work; and these are, therefore, important, just as the general members of our body are absolutely necessary for its maintenance and progress. The noble works of art and of the sciences are apt to make us forget those minor details without which such works could never have existed. These minor matters may command but little attention, nevertheless they have great influence. For instance, an improved tramway engine which could minimise the nuisance and the danger attending the employment of such engines, and would also reduce the cost of working, might seem at first sight merely to concern the boards of directors and the holders of capital, whereas it would really confer a direct benefit upon the general community. In the same way, any advances made which will have the effect of reducing the cost of residential property and public buildings, whilst making them more substantial and improving the sanitary provisions, would have a wide influence by the benefits they conferred.

The subject of the manufacture of bricks has during the last few years had its full share of attention. There has been a great number of patents granted for machinery, but often to individuals who have had but very crude ideas of what is really required to deal with clay successfully in making bricks. They have designed machinery more fitted, on account of its complex character, to spin silk or fold envelopes than to produce manufactured goods which sell at from 4s. to 5s. per ton. They are beautiful pictures, with their shaded lines, on paper, and the machines themselves are very pretty to the inexperienced eye. In many instances most extravagant claims have been put forward for the immense boon some of them were to yield to the manufacturing public. I was invited some four years ago to inspect a machine of this character which was the product of an ingenious though totally unpractical brain. The circular of invitation described in high terms its many advantages. When I inspected it I declared my wish to test it in order to prove the truth of their statements, but this was refused, for the reason that they knew it would not stand the test proposed. There has also been a sensational display of this kind lately which captivated some who were inexperienced, but amused those who understood what was put before them.

The manufacture of bricks, in common with other industries, is entered upon with a view to profit, and for this to be realised the best appliances must be obtained. The general impression in reference to this industry by those inexperienced is that experience and skill are unnecessary, and they embark in it with the most blissful confidence that nothing can prevent their success. They have seen brick-making machinery doing well in one place; they have visited it and have concluded at once that it was just the kind of thing to suit themselves. Thus they have given their orders, gone into an expensive outlay right off, and their subsequent experience has been a continuance of disaster and loss. The manufacture of bricks requires not only experience, as do other manufactures, but also a varied experience of the various natures and characters of clays. In cotton-spinning or printing work the routine is similar in every place where the same class of work is produced; but in making bricks it is found that an experience obtained in one place avails little or nothing in another place, perhaps not more than a field away.

LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.

A MEETING of this Society was held on Thursday evening, January 26th, at Vintners' Hall, Upper Thames-street, by special permission of the Vintners' Company. The hall of this Company is the eleventh on the list of the twelve great companies of London. In the Court-room are full-length portraits of Charles II., James II., Marie d'Este, and Prince George of Denmark. According to Stow, "Vintry Ward, so called of Vintners and of the Vintry, a part of the bank of the river Thames, where the merchants of Bordeaux craned their wines out of lighters and other vessels, and there landed and made sale of them."

The hall was erected by Sir Christopher Wren after the former building was destroyed in the Great Fire, and was opened in 1671. There is a good deal of old oak carving, and several banners of the Company in the hall. For special exhibition Mr. J. E. Gardner, F.S.A., sent a collection of engravings of the hall, and other buildings, such as the Custom House, Old London Bridge, and views of Frost Fair on the Thames. Mr. W. H. Cope lent a collection of jade ornaments, which attracted great attention. There were also two charters of the Vintners' Company (one of them granted by James II.), an elaborately embroidered pall of the Company (described by Mr. H. Magee), the plate of the Company, including the curious "milkmaid cup," and other objects, exhibited.

Dr. Edwin Freshfield, F.S.A., President of the Society, occupied the chair, and commenced by thanking the Vintners' Company for allowing the meeting to be held (not for the first time) in that hall. He was glad to know that so much was being done by the City companies to publish their histories. He divided the companies into three sections: the merchant companies, the crafts or tradesmen, and those of a quasi-professional nature, such as the Scriveners (one of whose books of record was shown), the Apothecaries, and the Barber-Surgeons, and offered a few remarks on each, observing that each trade or profession had its antiquities and its history.

Mr. E. W. Brabrook, F.S.A., next read a paper on "The History of the Vintners' Company," which received its charter of incorporation from Henry VI., in 1437, but whose history as a guild could be carried back two centuries earlier. The essayist recorded the noteworthy men connected with the Company from very early times down to a recent date, their habitation in the Vintry, the customs of the trade, and other matters of interest, such as how offenders were punished in olden times; one in particular being compelled to drink a draught of the bad wine he sold, and to have the remainder poured on his head!

Mr. W. H. Cope, who, as already mentioned, exhibited a collection of jade ornaments and weapons, next read a paper on "Jade," the well-known stone of various shades of green, which takes a very beautiful polish, and upon which, he said, the Chinese especially place a high value, and find in it the emblems of many virtues. He described its antiquity, the way the mineral is found, how articles are made from it, and other particulars, which were illustrated by the beautiful objects exhibited to the meeting.

Votes of thanks to the Vintners' Company, to the readers of the papers, to the exhibitors, and to the Chairman for presiding, closed the proceedings.

Sale of Building Land at Harrow.—On Monday last Messrs. Baker & Sons offered for sale, at the King's Head Hotel, Harrow, forty-seven plots of building land, being a portion of the surplus lands of the Metropolitan Railway Company. The property has frontages to the Pinner, College, and Headstone roads, the College-road being kerbed and paved and laid with a main sewer. There was a very numerous attendance of builders and others, the large room in which the sale took place being much crowded. The several plots submitted have frontages of 25 ft. each, with depths varying from 140 ft. to 160 ft. All the plots were quickly sold at prices varying from 40*l.* to 65*l.* each, the plots in College-road realising the highest price. The proceeds of the sale amounted to about 2,500*l.* A second sale of the Railway Company's adjoining property will shortly take place.

THE ARCHITECTURAL ASSOCIATION.

THE USE AND ABUSE OF MATERIALS.

Mr. Stannus, in opening the discussion on Mr. Somers Clarke's lively paper on this subject, given *in extenso* in last week's *Builder*, said that the members were much indebted to Mr. Somers Clarke for his admirable paper, which was of a kind that the Association ought to have more of. If they could forget for a moment all about styles and such things, and simply consider the straightforward use of materials, it would, as Mr. Clarke had said, conduce to much good work, which, while it might not be in any one particular class of archæological style, might eventually lead to a nineteenth-century style. Mr. Stannus went on satirically to observe that he further agreed with Mr. Clarke as to the baleful influence of the detested Renaissance, a style in which, to his bitter and poignant anguish, he had seen some of Mr. Clarke's own designs (laughter). He (Mr. Stannus) had on a former occasion read a paper on what he considered to be the proper treatment of cast iron, and he was glad to find that Mr. Clarke, though approaching the subject from a different point of view, had agreed with what he had then pleaded for. Mr. Stannus concluded by proposing a hearty vote of thanks to Mr. Somers Clarke.

Mr. James Doulton said that he had come more as a listener than as a speaker, and with the hope of learning also. As a manufacturer of terra cotta, he entirely endorsed what Mr. Clarke had said about the material. Manufacturers were in a great measure in the hands of the architects, and he hoped that what had been said that evening would be carefully considered, especially by the younger members of the profession; and that they would use the material as far as practicable in the small pieces, in which it was so successfully carried out in many old examples both in this and other countries. It would not be right for him to attempt anything like dictation; but he would say that his firm had often been called upon to execute work of which, as a *tour de force*, they might be proud, but which they would have much preferred designed with more suitable characteristics. It would have saved many heart-burnings. Mr. Clarke was quite correct in saying that terra cotta was apt to twist in the firing, but care often obviated this even in very large pieces; perhaps the fire tried this more than any other material. Some may perhaps say, "Why don't you make a stand and not do what is so unsuitable to the material?" This is not so easy in these days of fierce competition. As manufacturers his firm would do all they could in giving advice with regard to its capabilities, and rendering every assistance possible in its use; leaving, of course, the development in the matter of design and style with the architects (applause).

Mr. Leonard Stokes seconded the vote of thanks, and remarked that if they could thoroughly grasp what Mr. Clarke had been aiming at, and decide that materials should be used in a suitable way only, they would certainly be one step further forward than many of them now were. For instance, plaster should be used as plaster, and not made to represent stone; plaster was capable of very good treatment, and clever architects could produce excellent effects with it. As had been stated, cast iron was often made in imitation of wrought iron, whereas the former could produce effects quite as beautiful as the latter without any unsuitable imitation. What had often struck him was that architects did not grasp the effect of material on their designs. For instance, a man wished to use as much brickwork as he could; but in making a brick arch he found it difficult to make a point, and therefore he "shoved in" a piece of stone to serve as a key-stone, which, as a rule, spoiled the general effect. Perhaps, again, he had a brick string to deal with, and when he came to its intersection with another member, he dabbed in a square piece of stone to get a mitre, or something of the sort, but the fact was not grasped that a square block of light-coloured stone in the middle of a red-brick design entirely upset the effect (hear, hear.)

Mr. H. W. Pratt said that Mr. Clarke had undoubtedly hit on a very difficult problem, which architects in their practice had to solve, and had preached a sermon on what, as he had acknowledged, it was not easy to practise. He (the speaker) read a paper some years ago on the subject of "Shams," in which he dealt with some of the points that had been raised that evening. He was then somewhat surprised to find that the school of purists had almost departed, and that in its place there were members ready to defend what he might term all sorts of shams and abominations. He could name an endless string of such things. The carving of brickwork, for instance, was a thing he had always opposed, considering it a mistake to treat brick like a piece of stone; and although they had a precedent of some antiquity for doing so, he did not think that made it any the more legitimate (hear, hear). With regard to half-timber construction, he could not altogether bring himself to Mr. Somers Clarke's view of the matter,—that it was not legitimate or right treatment to make a half-timber wall or front as part of a hollow wall built of brick behind. It seemed to him that they would lose a beautiful form of construction, which was in itself legitimate, if they were to do away with the brick behind, because it was not an entirely waterproof material or form of construction. If architects only built those forms of construction which were to last for ever, it appeared to him they would not have any work to do in the future (laughter).

Mr. J. Osborne Smith said he had always understood that if they chose they could make a half-timber house warm. It did not follow that they should pursue the method of construction adopted by the over-praised old fellows who used to build those houses. Such timber construction was very often seriously defective, and if they could not improve upon it they were scarcely worthy the name of architect. He believed they could make such a house perfectly warm, and in some districts where other materials were difficult to procure, but where timber was plentiful, he saw no reason why they should not be doing justice to their clients by making use of timber, especially if painted and rendered fire-proof. He was extremely pleased with the general drift of the paper in reference to materials and the method of using them. He had the pleasure of hearing Mr. Crace, some years back, give an able lecture on a similar subject, which he had remembered to his advantage ever since.

The Chairman, in closing the discussion, remarked that it had never been his lot to hear a more interesting, instructive, and entertaining paper read in that room (applause). He was sure that Mr. Clarke, to use his own analogy, could have pulled a great many more stones out of David's scrip and thrown them. Indeed, he believed there was no single material now used by the speculating builder of which they would not find continual instances of the grossest misuse.

The vote of thanks was then put, and carried by acclamation.

Mr. Somers Clarke, in replying, said he was glad to learn from some of the speakers that timber was so plentiful, because he presumed it was its abundance which induced architects to utilise it. If timber was the material of the district, then it should be used, and that was how our forefathers used it, but it was quite a different thing to bring it into the centre of a brick or stone district, or into the middle of a town. It was then clearly a mere matter of fashion, and was in no case one of the most lasting methods of construction. Notwithstanding the sad reflection that if they built too well some one else might not afterwards get a job, they ought always to construct in a thorough and proper manner (applause).

The Royal College of Music.—It is announced that Mr. Samson Fox, C.E., the founder of the Leeds Forge Company, has given a donation of 30,000*l.* to the Royal College of Music. This sum will be expended upon the building of a permanent home for the institution upon a piece of land at Kensington to be granted by the Commissioners of the 1851 Exhibition, and in close proximity to the Imperial Institute. Other land adjacent will be reserved in order that at some future time additional structures may be erected on either side of the main building.

Iron, Hardware, and Metal Trades' Pension Society.—The thirty-second annual ball in aid of this Society will take place at Willis's Rooms, King-street, St. James's, on Thursday next, February 9th. Mr. William Eckstein, of Union-street, Southwark, is the Chairman of the Stewards.

THE LYRIC THEATRE, SHAFTESBURY AVENUE.

THE Lyric Theatre, for Mr. H. J. Leslie, is the second of the new theatres which are being erected in Shaftesbury-avenue from the designs of Mr. C. J. Phipps, F.S.A.

The contracts have been entered into with Messrs. Stephens & Bastow, of London and Bristol.

The theatre will have frontages to the Avenue of 150 ft.; to Great Windmill-street of 60 ft., and to Archer-street of 18 ft.

The façade towards the Avenue consists of ground story and three floors over, built in red brick and Portland stone.

The plans have received the approval of the Metropolitan Board of Works, upon whose land it will partly be built, with the addition of the site of the old Café de l'Étoile, a freehold property in Windmill-street, and will cover an area of 15,000 square feet.

The theatre will be about the size of the Lyceum, consisting of three tiers, the dress circle, or first tier, being level with the street. An enclosing corridor, 6 ft. wide, will run completely round the auditory, and there will be ten entrances and exits for the public, and three ways off the stage.

The stage will be 75 ft. wide and 4 2ft. deep from the curtain line to the back wall.

The dressing-rooms are all at the back of the stage, completely divided off by a solid brick wall, and all opening on to the main thoroughfare in Windmill-street.

In addition to the ten entrances before mentioned, an open iron gallery and staircase leads from each tier at the extreme back directly into the open air and on to the main street.

The entrance for the Royal Family is from the Avenue into a handsome foyer and direct into the box on the grand tier level.

The theatre will seat the following numbers of persons:—153 in stalls; 400 in pit; 182 in dress circle; 230 in upper circle or second tier; 580 in amphitheatre and gallery, or third tier; and 70 in twelve private boxes, equivalent to a holding capacity in money of 300*l*.

The whole of the several tiers, with corridors, foyers, and refreshment saloons, will be constructed of iron and concrete, also the floors of the dressing-rooms and flies.

It is intended to light the theatre by electric light, and there will be a hydraulic iron curtain separating the auditory from the stage fixed on to the solid brick proscenium wall.

In the frontage towards the Avenue, but entirely separated and distinct from the theatre, will be three floors of rooms, either for residential chambers, offices, or for a restaurant.

The theatre will be completed in September, and we are told that no expense will be spared to render it comfortable and at the same time as safe as human ingenuity can devise.

The cost of land and buildings will be little short of 50,000*l*.

CASES UNDER THE METROPOLITAN BUILDING ACT.

AT the Clerkenwell Police Court on Tuesday last the case of the District Surveyor of South Islington *v.* Yeomans was heard. Mr. H. Lovegrove, the District Surveyor, discovered a back addition in progress to a house in Canonbury-street, of which the defendant had not given notice. The magistrate set aside objections as to a sub-contractor being liable, and decided in favour of the District Surveyor, imposing a fine of 10s. and costs.

In another case, heard after the above, the defendant, one Blyth, had erected an irregular building for use as a conservatory without notice, and although the District Surveyor had given him every opportunity of giving notice, and had warned him of the consequences, he refused to do what the Act required. The magistrate ordered him to pay 20s. and costs.

FIRE AT THE "GRAND THEATRE."

SIR,—As I was at this building immediately after the fire, and have been many times since, I can endorse all that Mr. Drake wrote [p. 14, *ante*] as to the resistance of concrete to the intense heat, illustrated especially by the proscenium wall; but I assume that Mr. Drake does not claim any merit for his particular concrete.

The condition of the walls at the sides of the stage showed the danger of using iron girders without the protection of concrete or plaster.

In this, as in other fires, timber beams and lintels are only charred, while iron joists are twisted entirely out of their original shape.

HENRY LOVEGROVE.

THE LATE GEORGE GODWIN.

SIR,—It is my duty, as one of the contemporaries of George Godwin, and the senior of the architectural press, to render this brief tribute to his services. Fifty years ago, on its foundation, I was on the staff of the *Civil Engineer and Architect's Journal*, to which it is one of the titles of George Godwin to have been a contributor.

Architectural journalism was then on a very limited scale, even with the addition of the *Civil Engineer's Journal*. None but a contemporary can now testify what were the efforts of Godwin for its promotion, because now we have the results, and it is difficult to measure the past.

The part which he took in the establishment of the *Builder* deserves grateful commemoration by the architectural profession. His own personal qualifications greatly contributed to the result achieved, and I speak sincerely as one who watched him even as a rival.

While I give this tribute to his career as a journalist, I am not unmindful of his many other services to his profession, partly detailed in the obituary notice of the *Times*.

HYDE CLARKE.

DRAINS WITH LEAKY JOINTS.

SIR,—As my native town is about to be drained, I feel some interest in the various suggestions which have been made with reference to the laying of the sewers, the lifting power, and the ultimate disposal of the sewage; but among them all, nothing strikes me as so extraordinary as that sewers may become self-cleansing by an arrangement of leaky joints, such as appears to have been made quite unintentionally at Beaumaris.

In my simplicity I should have thought that if the joints would admit water they would also let it out; and further, that if the natural level of the water in the surrounding soil was above that of the lowest sewers, there would be a creeping in of mud, or sand, or whatever substance surrounded the pipes, which would ultimately cause considerable trouble.

But on the authority of Mr. John Phillips, C.E., it appears that I am wrong, although what I more particularly wish to be clear about is the diameter and the length of the sewer into which 58½ gallons per minute leak from the subsoil, and how the lifting or ejecting of this quantity (equal to 84,240 gallons per day) is conducive "to the ensured economy in working expenses"?

I have read a few specifications for laying and jointing sewage pipes, in all of which it has been required that the drains should be absolutely watertight, and in some cases the application of a very severe test has been a condition precedent to the acceptance of the work by the local authority.

Now the arbitrator at Beaumaris having, according to Mr. Phillips's letter [see *Builder*, p. 49, *ante*], required the Town Council to accept the drains as now laid, I imagine there is no such condition attached to that contract, and as it is further "authoritatively" decided that the installation is thoroughly *efficient* (presumably because it discharges the before-mentioned 58½ gals. per minute, for it cannot be gauged by its action with reference to the house connexions, as they are not in existence) I am expecting to find a rush of inventors with patent leaky joints, and, by way of improvement, percolating pipes also.

UNCONVINCED.

THE ROYAL INSTITUTE EXAMINATION.

SIR,—In the curriculum of the Institute Examination for the Associateship, it is required, in reference to "Architectural Styles," that the candidate possess a general acquaintance with the various styles, but special acquaintance with one, *which he may select*. The principle here is excellent. But in another, and the most important, part of the Examination,—the planning and designing of buildings, in which the highest number of marks, 200, are awarded,—candidates are at a loss to know, and the point presses sorely, whether they are to be examined off-hand in any one department of Architecture, commercial, domestic, ecclesiastical, or public, the subject changing every year, which they have not had the liberty of previously *selecting*. Surely, at the not very advanced age of twenty-one, or, as recommended, twenty-three, candidates are not assumed to have attained a complete mastery of the whole realm of Architecture?

CHAS. R. GUY HALL.

BOARD SCHOOL ARCHITECT'S APPOINTMENT.

SIR,—Can you or any of your readers inform me whether it is necessary for an appointment as architect to a School Board to be under *seal*, and whether, in the absence of such appointment under *seal* (but only by minute of the Board duly confirmed), the said architect would be precluded from recovering payment of his fees? INVICTA.

SEWAGE DISPOSAL.

SIR,—Referring to a "Note" in last Saturday's *Builder* [p. 60], in which several modes of sewage disposal are mentioned, "and it is shown that each involves insuperable objections," I think it fair to state that the "Shone" system referred to may be erroneously taken to be a mode of "treatment," whereas it is not, but is a means whereby water-carried sewage is rapidly collected and ejected out of town areas by means of small sewers laid to sharp gradients, as against large sewers laid at low gradients; Shone rapidly removing sewage before it has time to decompose, while the old-fashioned sewers too frequently become sewers of deposit, and are offensive.

LAMOROCK FLOWER, Major,
Sanitary Engineer to the
Jan. 31, 1888. Lee Conservancy Board.

*** Of course we, and we presume all our readers, are perfectly aware that the Shone system is not a system for the "treatment" of sewage in the usual meaning of the term. Our note was intended as a statement of some German opinions, not of our own; we ought to have written "it is argued," not "it is shown."

THE TITE PRIZE COMPETITIONS.

SIR,—Mr. Pearson is doubtless delighted at what he must consider the confirmation of his statements furnished by my letter o last week [p. 70, *ante*]. Confirmation it affords in one respect: it shows that there can be no doubt that the Tite Prize is going to Beaux-Arts men. This is a fact to be grieved over if he will, as showing the superiority of foreign methods of art study to our own, and the pressing want of adequate architectural training schools in England.

Mr. Pearson, however, is more than grieved: he is indignant, and calls for the exercise of your influence to put a stop to this state of things, and that, I apprehend, upon two grounds, the inability of the R.I.B.A. Council to appreciate the distinction between French and Italian Renaissance, and the dishonourable conduct of the Paris students in not according with the conditions that the drawings be their own work. These are grave charges, which Mr. Pearson has no right to publish unless he can substantiate them. That he is unable to do so his letter bears witness on both counts. Regarding style, his views are in direct contradiction of those expressed in your criticism of last week, where you describe the design by Mr. Kenyon (the Beaux-Arts student who has gained the prize this year) as "the most *correct* of the set, and what would have pleased Tite best," and such a remark would be equally applicable to the designs sent from Paris, as far as I have seen them.

As regards the practices in the Paris studios, Mr. Pearson, not having been there, can only speak from second-hand information, and I can but say that his information is erroneous.

Criticism and advice are, of course, obtained from professor and comrades, and who in this country does not seek for these from the best men he knows? But that the "drawings are detailed by several students" is untrue, unless blacking-in a plan or framing-up a drawing be considered detailing. Such things I have seen done both in Paris and here, and should not consider them dishonourable. If Mr. Pearson thinks so, and that he has been injured in the present instance, he has but to appeal to the proper authorities.

Finally, does the "study of Italian architecture in England" mean by English students, or on English soil? If the latter, not only would Beaux-Arts men be excluded, but the student would be unable to work in Italy itself,—surely a curious way of encouraging the study of that country's architecture!

My own remark regarding English animadversions on French training is borne out by Mr. Pearson's letter. When he has recovered from the natural chagrin of the disappointed competitor, he will probably himself regret the tone in which he has written.

The École des Beaux-Arts is not a "mill" in any sense of the word; and even though it were, it deserves respect in other countries for the good work it has done for art, and the open-handed hospitality shown to foreigners within its walls.

ALEXANDER N. PATERSON.
("Verb. Sap.")

MIDLAND COUNTIES ASSOCIATION OF PUBLIC SANITARY INSPECTORS.

SIR,—I much regret that the report published in the *Builder* of the 21st inst. of the meeting of the "Midlands Sanitary Inspectors' Association" [p. 48, *ante*], held at Birmingham on the 5th inst., has until to-day escaped my notice.

If not too late will you be good enough to permit me to supply a few omissions in the report forwarded to you of that meeting, and also some correction?

I attended the meeting on the invitation of the Secretary, as the Chairman of The Association of Public Sanitary Inspectors,—which is not a mere "London" association, as implied in the report,—the Association having from its foundation, five years ago, formed a rallying centre for inspectors throughout the country. This may be judged by the fact

that of 200 members, only 48 are Metropolitan inspectors, the remainder, 152, being rural and urban inspectors.

The report states "there was a good attendance" of members; that means fifteen, being the number of votes given; there may have been a few neutrals in the room, there would not be many. "A motion affirming the desirability of affiliation with them" (The Association) "was put to the vote and lost." That was not put to the meeting. A resolution declining to become a "branch" of the Association was adopted. The latter was an amendment, and was the only vote taken; it was carried by a majority of one, eight voting for, and seven against it.

The significance of the whole proceedings may be inferred by your readers from the fact that the Chairman, Secretary, and the five other members who voted against the amendment, were so indignant with the result and the character of the opposition to the affiliation proposal, that they at once declared they would have no more to do with the attempt to establish an association in Birmingham. Those who were members of the Central Association said they would remain so, and the others proclaimed their intention of joining the "Centre."

I much regret the result attending the well-meant efforts of the Secretary and Chairman, and the other five gentlemen who loyally sought to aid the good work of the Association; and I regret it the more as I am informed that previous efforts to establish an Inspectors' Association in Birmingham were failures.

HUGH ALEXANDER,
Chairman of The Association of Public Sanitary Inspectors.

London, Jan. 30.

ST. CHAD'S COLLEGE CHAPEL, DENSTONE.

SIR,—I shall be glad if you will note that the cost of the Chapel of St. Chad's College is over 12,000*l.*, instead of the very modest sum of 1,300*l.*; and also that the design is by Messrs. Carpenter & Ingelow. It is described in the title as mine only.

R. HERBERT CARPENTER.

*** The sum of "1,300*l.*," which certainly surprised us, was very clearly and distinctly written in the MS. of the description forwarded to us by Mr. Carpenter.

The Student's Column.

IRON.

V.—REFINING AND PUDDLING.

ALL iron smelted from clay ores is stronger than that smelted from any other kind of ore, particularly when made into wrought iron. Iron ores of the red hæmatite class, which are known by the names of specular, micaceous, kidney, and other ores, according to their different varieties, furnish a superior quality of iron, which is distinguished for tenacity and softness. The spathic or sparry ores contain carbonate of magnesia and carbonate of manganese, and are converted into steel with less labour than fibrous iron. The brown hæmatite ores, which are a hydrated peroxide of iron, often contain large quantities of manganese.

The following table of the composition of specimens of grey, mottled, and white varieties will serve as an example of their relative qualities:—

	Grey. Per cent.	Mottled. Per cent.	White. Per cent.
Iron	90·24	89·31	89·86
Combined carbon	1·02	1·79	2·46
Graphite	2·64	1·11	0·87
Silicon or Silisium	3·06	2·17	1·12
Sulphur	1·14	1·48	2·52
Phosphorus	0·93	1·17	0·91
Manganese	0·83	1·60	2·72
	99·86	98·63	100·46

Also a trace of nickel and cobalt.

To obtain wrought iron direct from the ore, it is essential that the ore should be as rich as possible in iron. When this is the case, the metal may be run from the blast furnace into iron moulds, instead of into sand moulds, as is the case with cast iron. By this means it is kept free from the impurities of the sand. The moulds are usually lined with loam, and are kept cool by water circulating underneath them. The surface likewise becomes chilled by the metal mould, and the metal is thus easily broken up for further treatment. Suitable metal can also be obtained from those pigs which are almost free from uncombined or graphitic carbon, and which are, therefore, unfit for superior castings. The metallic alloy is freed from the larger portion of its impurities, such as phosphorus and silica, by a process called "puddling," which burns out the excess of carbon, and renders the iron malleable. The best qualities undergo a process of refining previously to puddling, which consists of re-melting the metal upon an open hearth, with coke or charcoal, and directing a strong current of air against it. Inferior qualities are puddled only, without preliminary refining.

Refineries are distinguished as melting-down and running-in fires. The former melt cold pigs from the blast furnace, old castings and scraps, with the arrangements usually placed in a building by itself at some distance from the blast furnace The latter work upon hot fluid metal run direct from the blast furnace, and are erected immediately contiguous to the blast furnace from which the metal upon being tapped flows. The refining process removes some of the carbon and silicon. The consumption of fuel in puddling refined metal is smaller than when unrefined pigs are used. The puddling of the iron is effected by fusion and oxidation in what is called a reverberatory furnace, that is, a furnace contrived to throw back the heat of the fire upon the melted metal. This may be effected without the intervention of a blast, but since the blast expedites the operation, and results in a superior yield for the same degree of refinement, it is generally preferred. Grey iron requires less blast and less heat than white iron, a shallow hearth, and more dip of the tuyere. The base is also more inclined towards the front than when white iron is to be dealt with. White forge iron is not blown so long as grey pig. With white iron the blast is stronger from the beginning, and the tuyere does not dip so much.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

2,244, Latches or Locks. F. Taylor.

This invention relates to a push-and-pull latch, and by pushing or pulling the knob or door spindle the latch bolt is drawn back, while by the action of a spring the same is forced forwards again on releasing the knob. The latch bolt is formed in about the middle with a horizontal incline, which is acted upon by means of another corresponding incline formed on the spindle of the latch, which is mounted in holes made in the casing of the lock. The ends of the door spindles have a thread, on to which is screwed the door-knob or handle; a lock nut is placed behind and between the door and the door knob; this retains the handle in any desired position and facilitates the use of one length of spindle for different thicknesses of doors.

2,482, Portland Cement, Bricks, Tiles, &c. W. Tuffee.

This invention consists of what is claimed to be a very simple and economical method of manufacture. Mud and chalk or other ingredients are taken in the proper proportions and cast into the mixing mill, where they are first treated by crossed revolving arms. The material then falls down upon a platform of adjustable parallel bars, on which are revolved a number of rollers and drags; a similar platform again receives the partly pulverised material, which is ground and mixed as often as may be necessary. A double hopper is employed for the delivery of the material, and it is mixed with fuel in such proportions as may be desired while being fed or delivered to the kiln, where it is burnt in the usual way.

2,813, Ventilating, Warming, and Illuminating Apparatus. R. W. Hellyer.

By this invention, one or more gas-burners, enclosed with glass or metal, burn in a chamber surrounded by two pipes, made to communicate with the external wall,—the outlet and inlet pipe respectively. The outlet pipe is fitted with a down-draught check or cowl, and passes through the inlet pipe, which supplies fresh warm air to the room or place, and to the burner or burners. There are really three chambers formed by the pipes, and by them warmed pure air is brought into the room, and the vitiated air of the place taken away.

4,261, Window Sashes. J. Millar.

Each sash made according to this invention consists of two parts, one part being hung by the sash cords. The other part, which holds the glass, is hinged to the former so as to swing within it; its upper portion inward and its lower portion outward, until in the extreme position it is entirely reversed for cleaning, painting, or glazing. When closed, each half fits weather-tight into the hanging sash by means of bevelled cheeks formed in each, the two parts then forming one sliding sash, like an ordinary window.

16,025, Saws. E. M. Boynton.

The improvements which are the subject of this patent consist in making the teeth of cross-cut saws of a peculiar shape, but they are specially made with concave teeth, and bevelled from alternate sides. Time saved in sharpening and extra speed in sawing is claimed as the result of this invention.

12,919, Revolving Wood Shutters. A. Wells.

According to this invention, the hinges are made and connected with metal wire bent to suit the shape of lath. Each length of wire is connected by a pin, and let into the wood laths, the top edge of the wire acting as a countersink for the head of the screw.

NEW APPLICATIONS FOR PATENTS.

Jan. 20.—883, S. Adams, Ventilating Sewers, Drains, &c.—888, H. Waddington, Draught-Preventors for Doors and Windows.—895, C. Jones, Safety Window-catch.

Jan. 21.—935, S. Turner, Crab-craw Lock Roof-tile.—954, D. Hart, Screw-drivers.—972, J. Goüin, Trussed Girders.

Jan. 23.—1,004, G. Wright, Bricks, Blocks, or Slabs for Building.

Jan. 24.—1,046, W. Redish, Fire-grates.—1,062, G. Verini, Chimney-pots and Terminals.—1,072, E. Cory and Others, Travelling Circular-saw Benches.—1,085, H. Newton, Chain-bolts for Doors.—1,100, G. Downing, Electrical Brazing and Soldering.

Jan. 25.—1,135, A. Clery, Metallic Cement.—1,140, G. Henderson, Securing and Releasing Doors.—1,150, J. and F. and C. Carr, Secretly and Securely Fastening Window-sashes.—1,154, A. Eggimann, Roofings of Hollow Tiles, &c.

Jan. 26.—1,199, A. Brown, Ventilator for Rooms, Halls, Public Buildings, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

16,527, G. Restall, Automatic Disinfectant Discharger for Drains, Sinks, &c.—16,691, F. Hughes, Fastenings for Windows.—17,832, R. Sayer, Water-taps, &c.—17,868, J. Blackburn, Sash Windows.—17,869, J. Howie, Flushing Cisterns for Water-closets, &c.—17,958, W. Hurndall, Paints for Iron and Steel.—163, M. Edgley, Water-taps.—520, G. Verini, Chimney-pots and other Exit Terminals.—554, D. Burns, Chimney Cowls and Ventilators.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

4,386, J. Bordenave, Manufacture of Pipes, Tubes, Culverts, and other Structures composed of a metallic framework combined with Cement, Mortar, Concrete, &c.—4,463, H. Allan, Soil-pipe Connexions for Water-closets, &c.—4,468, J. Morris, Chimney-top or Cowl.—4,985, J. Thompson, Combined Open Fireplace and Kitchen Range.—7,959, G. Levis, Floor Coverings, Flooring, Wainscoting, &c.—15,626, A. and R. Kerr, Wood-working Machinery.—17,709, S. Worsencroft, Water-closet Bowls.—17,794, W. Thompson, Hinges.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

JANUARY 18.

By JOHN LEES.
(At Puckeridge.)

Herts, Braughing—Alma Villa, and 1a. 1r. 20p. freehold	£355

JANUARY 23.

By SLADE & BUTLER.

Kentish Town—58, Malden-road, 53 years, ground-rent 10*l.*	1,150
Primrose Hill, Eton-place—Block of stabling, 67 years, ground-rent 5*l.*; also a workshop, 57 years, no ground-rent	1,100

By TABERNACLE & SON.

Peckham—An improved ground-rent of 34*l.* 4s., term 60 years	500
44, 46, and 48, Asylum-road, term 60 years, no ground-rent	1,385
Ground-rents of 30*l.*, term 60 years	510
58 and 60, Asylum-road, 60 years, ground-rent 13*l.*	660

JANUARY 24.

By C. & H. WHITE.

Kennington-lane—Carlisle Chapel, freehold, area 3,5.0 ft.	810

By GEO. GOULDSMITH, SON, & Co.

Bryanston-square—No. 30, with stabling, 21 years, ground-rent 52*l.* 10s.	2,570

By DEBENHAM, TEWSON, & Co.

Great Tower-street, E.C.—Ground-rent of 305*l.*, reversion in 55 years	9,700
Holloway—Ground-rents of 50*l.* 11s., reversion in 74 and 75 years	1,420
Ground-rents of 193*l.* 9s., reversion in 74 and 75 years	5,320
Ground-rents of 75*l.*, reversion in 74 years	2,000
Ground-rents of 140*l.* 17s., reversion in 74, 75, and 77 years	3,850
Ground-rents of 76*l.* 18s. 4d., reversion in 74 years	2,130
Ground-rents of 93*l.* 19s. 6d., reversion in 76 years	2,510
Ground-rents of 117*l.* 13s. 6d., reversion in 75 and 76 years	3,270
Chelsea—43 and 43A, Tetcott-road, 94 years, ground-rent 6*l.* 16s.	330
3 and 4, Stanley-villas, 63 years, ground-rent 10*l.*	545
16, Coulston-street, 54 years, ground-rent 28*l.*	65
22, Whitehead's-grove, and 10A, College-street, the lease of, term 19 years	100

JANUARY 25.

By FULLER, HORSEY, SONS, & CASSELL.

Victoria Park—5, St. Agnes-terrace, 66 years, ground-rent 6*l.* 10s.	665

By WOODS & SNELLING.

Notting Hill—Ground-rent of 60*l.*, term 36 years	790

By MADDOX & SON.

Bayswater—77, Norfolk-terrace, 58 years, ground-rent 8*l.* 10s.	825

By RICHARDSON & BARTON.

Burton-crescent—11, Leigh-street, 17 years, rent 40*l.*	100

By HOBSON, RICHARDS, & Co.

Hoxton—Ground-rent of 10*l.*, reversion in 15 years	705

By W. W. JENKINSON.
(At Brighton)

Hove—4, Medina-villas, copyhold; and a moiety of the Manor of Hove	2,470

By FAREBROTHER, ELLIS, & Co.
(At Romford.)

Brentwood, near—Three freehold cottages and gardens	£160
An enclosure of freehold land, 2a. 1r. 0p.	100
Freehold cottage, 6a. 0r. 4p.	140
Four enclosures of freehold land, 17a. 3r. 4p.	650

By ELLIS, MORRIS, & SUTHERLAND.

St. Mary Axe—13, Bury-street, freehold, area 1,430 feet.	4,400
Pimlico—55, Tachbrook-street, and a ground-rent of 6*l.*, 32 years, ground-rent 13*l.*	500

JANUARY 26.
By GLASIER & SONS.

Hyde Park—2, Westbourne-crescent, 54 years, ground-rent 2*l.*	2,770
Fulham-road—Nos. 303 and 305, term 86 years, ground-rent, 4*l.*	3,700
St. Martin's-lane—24 and 25, St. Martin's-court, 7 years, ground-rent 30*l.*	200

By E. STIMSON.

Paddington—31 and 33, Harrow-road, copynold	2,190
Lambeth—104, Lower Marsh, copyhold	1,050
Vauxhall—187 and 189, Upper Kennington-lane, 18 years, ground-rent 8*l.*	625
26, Harleyford-road, 18 years, ground-rent 4*l.*	250

By C. C. & T. MOORE.

Bow—10 and 12, Guerin-street. 84 years, ground-rent 8*l.*	550
Poplar—63 and 65, Chrisp-street, 54 years, ground-rent 6*l.* 6s.	1,190
Rotherhithe—1 and 2, Clarence-place freehold	420
Mile-End—118A and 120A, Bridge-street, 71 years, ground-rent 12*l.*	470
16, 22, 26, and 34, Maplin-street, freehold	950

JANUARY 27.
By C. D. FIELD & SONS.

Peckham—43, Marmont-road, 71 years, ground-rent, 7*l.* 10s.	360
Ilford-road—A plot of freehold land	85

By FURBER, PRICE, & FURBER.

Woolwich, Chapel-street—A ground-rent of 10*l.*, reversion in 33 years	280
Ground-rent of 26*l.*, reversion in 33½ years	780
Ground-rent of 6*l.* 15s. reversion in 4 years	575
Ground-rent of 1*l.* 5s. 6d., reversion in 21 years	110
Ground-rent of 1*l.* 4s., reversion in 9¾ years	180
Ground-rent of 5*l.*, reversion in 41 years	145
Ground-rent of 2*l.* 17s., reversion in 17 years	230
Ground-rent of 15*l.*, reversion in 36 years	405
Ground-rent of 10*l.*, reversion in 36 years	255
A peppercorn ground-rent, with reversion in 17 years to rack rentals of 75*l.* a year	225
King's Cross—47, Brewery-road, 59 years, ground-rent 3*l.*	375

MEETINGS.

SATURDAY, FEBRUARY 4.

Architectural Association.—Visit to St. Paul's Church and Palace Court, Kensington. (See advt. on first page of last week's issue.)

Society of Arts.—Public Conference on the Sanitary Registration of Buildings. 4 p.m.

Association of Public Sanitary Inspectors.—Fifth Annual Dinner, Mr. Edwin Chadwick, C.B., President, in the chair. First Avenue Hotel, Holborn, 6 p.m.

MONDAY, FEBRUARY 6.

Royal Institute of British Architects.—(1) Announcement of the Council's Recommendation as to Award of the Royal Gold Medal. (2) Presentation of Subscription Portrait of Mr. Ewan Christian, Past-President. (3) Continued Discussion on Mr. Ralph Nevill's paper on "Theatres." 8 p.m.

Royal Academy.—Professor Aitchison, A.R.A., on "The History of Architecture." V. 8 p.m.

Surveyors' Institution.—Mr. S. B. Saunders on "Railway Fences and Boundaries, and the Question of Substituting Iron in lieu of the Materials now used." 8 p.m.

Society of Engineers.—(1) The President for the past year, Professor Henry Robinson, will present the Premiums awarded for Papers read during the year. (2) The President for the year 1888, Mr. Arthur T. Walmisley, will deliver his Inaugural Address. 7·30 p.m.

Society of Arts (Cantor Lectures).—Mr. A. Gordon Salamon, F.C.S., on "Yeast, its Morphology and Culture." II. 8 p.m.

Leeds and Yorkshire Architectural Society.—Mr. W. H. Thorp on "Horace Walpole, his Life and Times; with some Notice of the Condition of Architecture and the Fine Arts during the latter Half of the Eighteenth Century." 7·30 p.m.

TUESDAY, FEBRUARY 7.

Institution of Civil Engineers.—Mr. A. C. Hurtzig on "The Alexandra Dock, Hull." 8 p.m.

Society of Biblical Archæology.—(1) Mr. P. le P. Renouf (President) on "Pronominal Forms in Egyptian: their Relation to Semitic." (2) Major Arthur H. Bagnold, R.E., will give an "Account of the Raising of the Two Colossal Statues of Rameses II. at Memphis." 8 p.m.

Society of Arts (Foreign and Colonial Section).—Mr. H. C. Beeton on "British Columbia." 8 p.m.

Manchester Architectural Association.—Mr. Edgar Attkins on "The Law in Relation to Architects." 7·30 p.m.

Museum of Archæology, Cambridge.—The Rev. G. F. Browne, B.D. (Disney Professor), on "Sculptured Stones of pre-Norman type in the British Islands," II. 2·30 p.m.

WEDNESDAY, FEBRUARY 8.

St. Paul's Ecclesiological Society.—Mr. W. Bolton on "English and Foreign Cathedrals and Churches, Contrasted and Compared." 7·30 p.m.

Society of Arts.—Mr. W. Lant Carpenter, B.A., on "The Continuation of Elementary Education." 8 p.m.

THURSDAY, FEBRUARY 9.

Royal Academy.—Professor Aitchison, A.R.A., on "The History of Architecture," VI. 8 p.m.

Society of Arts (Special Lectures).—Professor Hubert Herkomer, A.R.A., on "Etching and Mezzotint Engraving." 8 p.m.

Society of Telegraph-Engineers and Electricians.—Mr. G. Kapp on "Alternate Current Transformers, with special reference to the best Proportion between Iron and Copper." 8 p.m.

Society of Antiquaries.—8·30 p.m.

Edinburgh Architectural Association.—Professor G. Baldwin Brown, M.A., on "The Mediæval Monastery, its Place in the History of Architecture." 8 p.m.

FRIDAY, FEBRUARY 10.

Institution of Civil Engineers (Students' Meeting).—Mr. H. M. Martin on "Arched Ribs and Voussoir Arches." 7·30 p.m.

Royal Institution.—Mr. W. H. Preece, F.R.S., on "Safety Lamps in Collieries." 9 p.m.

SATURDAY, FEBRUARY 11.

Surveyors' and Auctioneers' Clerks' Provident Association.—Annual General Meeting, Auction Mart. 3 p.m.

Edinburgh Architectural Association.—Visit to Ravelston and Craigcrook."

Miscellanea.

The Surveyors' and Auctioneers' Clerks' Provident Association.—The Committee of Management have forwarded to us their Report and Statement of Accounts for the year ending 31st December, 1887. The figures show that the financial position of the Association continues to improve. The total reserve capital is now 1,906*l.* 5s. 6d., being an increase of 138*l.* 2s. 1d. on the year. The interest on the invested funds has been more than enough to meet the management expenses of the year. Four members have joined during the year, and one member has died; but no claim arises on the life assurance fund. The distribution of the members is as follows:—Sick Fund, 28; Life Assurance Fund, 24 (including one member's wife); Superannuation Fund, 9; and Benevolent Fund, 8. The Committee have had three applications for grants from the Benevolent Fund, from members of the profession not being members of the Association; but on investigation it did not appear that the circumstances of two of the applicants were such as came under the regulations framed by the committee, and no grants were made. In the other case a grant of 5*l.* was made, which the Committee have reason to know was of material assistance to the applicant at the time. On behalf of the members the committee again thank the honorary subscribers for their continued support; and they strongly appeal to the members to use their best efforts to make the advantages of the Association more widely known. It is announced that the annual general meeting of the Association will be held at the Auction Mart, Tokenhouse-yard E.C., on Saturday next, February 11, at 3 p.m.

Water Supply in the Isle of Wight.—Boring operations have been successfully carried on at St. Helen's, Isle of Wight, for several weeks past by Mr. T. Parsons, the patentee of Parsons's improved well-boring appliances, for the purpose of supplying the hotels at Bembridge with water. These tools are lowered and raised in the bore-hole by sliding up and down the boring-rod, without the removal of the latter from the bore-hole each and every time of cleaning out the tools, and although the nature of the strata was such as to present great difficulties to any boring operations, the tools have done excellent work, and last week a spring was tapped. Pumps were erected capable of raising from two to three thousand gallons per hour, and after pumping for ten hours the supply was found to be in no way reduced.

New Bank and Temperance Hotel, Sheffield.—The foundation-stone of these buildings, which are being erected at the corner of Fargate and Surrey-street, for the Yorkshire Penny Bank and the Sheffield Café Company, was laid on the 18th ult. The new buildings will be six stories in height, and the front elevation, which is circular on plan, will be built of rubbed masonry, in the Early Gothic style. The bank will occupy part of the site on the ground and basement floors, and the remainder is to be used by the Sheffield Café Company. A hydraulic passenger lift will run from the basement to the top floor of the restaurant. The cost of the buildings and site will be about 18,000*l.* The buildings are being erected from the designs of Messrs. Perkin & Bulmer, architects, of Leeds, by Messrs. Armitage & Hodgson, of Leeds.

Jubilee Memorial Clock-Tower at Harlesden.—The unveiling took place on Saturday last of a cast-iron clock-tower, designed and erected by Messrs. Steven Bros. & Co., ironfounders, of Upper Thames-street, E.C., and Milton Ironworks, Glasgow. The clock-tower consists of a column supporting the clock, with a suitable terminal, and four gas-lamps, supported by ornamental brackets. At the base are two drinking fountains and dog-troughs, and the whole is decorated and picked out in gold.

Portable Houses.—A few days since we were present, on the invitation of a number of gentlemen interested in improving the health of military camps, and providing healthy accommodation for large bodies of workmen when away from their homes, at some trials made on the open space fronting the India Offices, in Charles-street, Westminster, of the "Ducker Portable Houses." The invention is of American origin, and is stated to have received the approval of Continental military authorities, the advantages claimed being the simplicity and stability of the structures, combined with lightness, ease of transportation, rapidity of putting up and taking down, ventilation, heating, and facility for cleansing and disinfecting. The trials afforded a very fair test so far as rapidity of removal and reconstruction are concerned. One of the larger of the houses, adaptable for barrack or hospital accommodation, 35 ft. long, 18 ft. wide, with twelve beds, twelve tables, and twelve chairs, suitable for a staff of eighteen or twenty soldiers and volunteers, was pulled down in thirty-five minutes, and re-erected in fifty-five minutes. The buildings are constructed in sections, and are exceedingly light, the panels being of leather board, which is stated to be perfectly waterproof. The entire weight of one of the larger buildings was estimated as being under 4,000 lb., and it can be loaded on one ordinary wagon and hauled by two horses.

National School of Forestry.—Steps have recently been taken by the Corporation of Southampton, in conjunction with the Council of the Hartley Institution, to obtain the co-operation of other Corporations and local bodies throughout Hampshire in promoting a general memorial to Government relating to the proposed National School of Forestry, and the scientific and experimental work in Forestry connected therewith. A Select Committee of the House of Commons reported on the subject last session, recommending the establishment, eventually, of National Forest Schools in England, Scotland, and Ireland with a view to a general improvement in the science and practice of Forestry in the United Kingdom and also in India and the Colonies. Hampshire is essentially the forest county of England. It contains not only more public forest land than any other English county, but more than all the other counties combined. The request, therefore, seems only a reasonable one that the proposed Forestry School for England should be located in Hampshire, and that the scientific and practical Forestry connected with it may be conducted on the very extensive Crown lands in this county. Memorials to this effect are now being sent up to the Lord President of the Council, from the Corporation of Southampton, and other bodies.

The Preservation of Ecclesiastical Monuments in Prussia.—Steps are being taken in Prussia for the more effectual preservation of ancient church monuments, a memorandum having that object in view having been recently issued to the ecclesiastical authorities (consistoriums). Hitherto the Government had only the power to put its veto upon proposed sales of ecclesiastical works of art, but it was powerless to prevent neglect, alterations, or so-called restorations. The ecclesiastical authorities have now been admonished to pay more regard to their preservation, which is enjoined upon them as a duty they have to perform. But a much more effectual check upon waste and spoliation is to be provided in Prussia by a proposed law enforcing such preservation, and providing the necessary funds for carrying it into effect.

Steel Lace.—A new branch of industry is going to revolutionise the lace trade. A New York dealer in laces is exhibiting a specimen of lace in an extremely delicate pattern; and so light that it can almost be blown away by a breath of air. This lace is made of steel rolled as fine as the point of a cambric needle. It is not woven, but stamped out of a sheet of low grade steel, so that it should not be too brittle. It was turned out of a small Pittsburgh mill, and sent to the dealer to show what could be done in that line. In the course of time other patterns will be made, heavier, perhaps, but certainly more tenacious than this piece. There is said to be no question as to its durability, and its cheapness would make it the most saleable of all laces in the market. It may create a revolution in the lace market if rust can be guarded against.—*Iron.*

Edinburgh Architectural Association.—The usual fortnightly meeting of this Association was held on the 26th ult., in the Architectural Hall, 42, George-street. Mr. Hippolyte J. Blanc, President, occupied the chair. After the usual preliminary business was disposed of, the Secretary said:—Death has been busy amongst our members, as in our beloved city. I think, therefore, the graves should not be allowed to close, nor this occasion to pass away without expressing our sense of the loss we have sustained, through the removal of Mr. James Campbell Walker, architect, and Mr. William Johnstone, surveyor. Mr. Walker joined the Association some five years ago, in response to an appeal that practising architects should do all in their power to promote the unity of the profession and the influence of the Association. Mr. Walker, be it said to his honour, remained loyal till the time of his death, notwithstanding that ill-health confined him almost constantly to his house or room, and prevented him converting his warm sympathy into the active assistance which he otherwise would have given. The Association has thus lost a true friend,—the profession an ornament. Mr. Walker was kind to all, conscientious, painstaking, and skilful in his work, faithful in the discharge of all his duties, and much beloved by those who knew him, and I would therefore suggest that the Association forward an expression of sympathy to his widow. I would also propose that the same course be adopted in regard to our late friend Mr. William Johnstone. His familiar figure will be seen no more at our Thursday meetings nor our Saturday excursions, and it therefore becomes us to pay one last tribute as an Association to his memory. His retiring disposition prevented him from taking office in the Association, yet he was constant in his devotion to its interests. May we all emulate these gentlemen in what remains to us of life, and endeavour to fill our places as they have given us example. After some remarks of the President, Mr. Macpherson read his paper, entitled "Some Elements of Design," dealing with the question of proportion in architecture and with special reference to the proportions observed in Scottish Mediæval work, adverting first to the great activity shown by architectural students in recent years in sketching.

United Arts Club.—The annual general meeting of this Club took place at the Club House, Dover-street, Piccadilly, on Tuesday evening last, Mr. H. L. Florence, Chairman of the Committee, in the chair. From the report of the proceedings for the past year, it appears that, although a young club, it is progressing very favourably, and already consists of over 400 members, many of whom are well known in the architectural and engineering professions. A discussion arose as to the advisability of removing next year to larger and more central premises, but the Committee suggested that, although a sub-committee had been appointed for the purpose of considering this matter, they were not quite prepared to decide the question until a larger accession of members warranted the increased outlay. Great regret was expressed at the death of Mr. Edward I'Anson, the President of the Club, who had from the first taken a lively interest in its welfare, and a vote of sympathy and condolence with the family was passed. After the election of the Committee for the year, the meeting closed with a vote of thanks to the Chairman.

The Wickham Farm Cement Works.—Last week Messrs. Fuller, Horsey, & Co. offered for sale, at the Auction Mart, the Portland cement works at Rochester, known as the Wickham Farm Works. The property is situated on the Medway, about two miles from Rochester, and occupies an area of thirty-eight acres, together with the modern plant and machinery. The property was stated to be held on lease for a term of sixty years from September, 1881, at a ground-rent of 20*l.* per annum, and also subject to a further yearly rent of 10*l.* for every additional acre of land taken for the purposes of the works. The biddings commenced by an offer of 3,000*l.*, and 4,800*l.* being the highest sum offered, the property was withdrawn, the auctioneer observing that the highest bid was considerably below the reserve.

The Parkes Museum.—We are informed that H.R.H. the Duchess of Albany has consented to become Patroness of the Parkes Museum, of which H.R.H. the Duke of Albany was president until his decease.

The New Metropolitan Police Offices on the Thames Embankment.—The works for the new central station of the Metropolitan Police Force on the Thames Embankment, which are intended to supersede the establishment in Scotland-yard, are now in active progress, a large number of men being employed upon them. The spacious building will almost entirely cover the site until recently occupied by the unfinished Opera House, which has been purchased by the Government authorities for the purpose. It covers an area of about 40,000 ft., or nearly an acre in extent, having a frontage of upwards of 200 ft. to the Embankment, and extending in depth westward to Cannon-row, by which the building will be approached, as well as by the principal entrance on the Embankment. At the south end of the site there will be a carriage-way, about 60 ft. in width, running westward from the Embankment to the Cannon-row boundary, and with the exception of an area in front of the Embankment elevation, the building will occupy nearly the whole of the remaining portion of the site having a frontage to the Embankment of about 150 ft. in length. The necessary excavations having been completed, the foundation walls and basement are now in process of construction, and the superstructure will shortly be proceeded with. The building is intended to be a lofty and handsome edifice, harmonising in its architectural features with the recently erected structures around it. The plans and designs have been prepared by the official architect of the force, the contractors being Messrs. Grove & Sons, of New North-road. It is said that the cost of the building, including the price paid for the land, will amount to 250,000*l.* We quote the foregoing from the *Morning Advertiser*; but we thought that Mr. Norman Shaw was to be the architect of the new building?

A Memorial to Walter Savage Landor has just been erected in the Church of St. Mary, Warwick, which was his native town. It has been designed in the Renaissance style by Mr. B. Edmund Ferrey, F.S.A., and contains a portrait bust from the studio of Mr. James Forsyth, who has also executed the architectural portion of the work. The bust is of very light-coloured alabaster, the other parts of the memorial being of mottled brown alabaster. The idea of the architect has been to do away with the "tablet" notion, and so the composition has a shallowly-recessed niche, with semicircular head carried on fluted pilasters. The capitals of the latter have delicately-carved rosettes. The inscription is in projecting Roman letters, gilt on the front. Above the niche is the Landor coat-of-arms and crest duly blazoned, flanked by two rich circular medallions. The memorial projects scarcely half an inch from the wall, which is a very thick one (though not external), separating the west vestibule from the nave of the church.

A Boulder Found in Manchester.—In the course of constructing the main sewer in Oxford-street, in this city, the workmen a few days ago came upon an enormous boulder, at a depth of 40 ft. from the surface. It was discovered at the junction of the boulder clay with the underlying gravel, and, as far as can be ascertained, is of the following dimensions:—Length, 8 ft. 6 in.; breadth, 5 ft.; thickness, 2½ ft. It is believed that the block weighs no less than 20 tons. The stratum in which it was found, and the general appearance of the boulder, indicate that it is an erratic block of volcanic origin, which at the Glacial period was probably brought from the Lake district. It is to be raised to the surface, and there is no doubt that its destination will be the Geological Museum of Owens College.—*Manchester Guardian.*

New Mortuary, Kingston-on-Thames.—A new public mortuary has recently been opened at Kingston-on-Thames. It is fitted up with all the most modern appliances. The *post-mortem* table is capable of being moved in six different positions, and at almost any angle. At the conclusion of an inquest, recently, Mr. A. Braxton Hicks, the Coroner, publicly thanked the inhabitants for taking up the question of this much-needed accommodation, and the Burial Board for acting upon the suggestion in such a satisfactory manner. He remarked that it was of the utmost importance that a parish of 40,000 inhabitants should have a proper place for the reception of its dead. The table was designed and made by Mr. Thomas Stevens, of the Ceres Ironworks, Kingston.

Wire Theatrical Scenery.—This is the latest invention in theatrical furniture, and to all appearances seems likely to come into practical application very soon. It seems to be agreed on all sides that, so long as canvas remains in use and is stored in an old condition in large quantities in theatres, the danger of fire breaking out at any moment will never be entirely avoided. According to the results of long and careful trials with impregnation, which have been instituted at Berlin by the committee of safety, only very discouraging results have been obtained. The impregnation of the stuff with fire-resisting substances is effectual for a time, but makes it rotten and fibrous, and in the end it loses its fireproof qualities. The next question obviously was to try and find some sort of fabric, which at once had the requisite pliability, was proof against fire, and could be painted upon like linen or canvas. A painter, Ernst Tepper, set to work to study the matter, and in the end achieved such good results that his invention has met with the approval of those parties who are technically conversant with theatrical requirements of this description, and shortly a sample of the invention will be ready to be put into practical application. The only fabric available appeared to him to be the fine woven wire gauze, such as is common for blinds to the lower panes of glass of windows, and also used for kitchen and pantry safes. This fabric, which is fireproof, can be woven so fine that scenes can be painted on it and still be as flexible as linen. A first difficulty, however, presented itself, for when painted upon it was porous and could be seen through, and all the painting in the world would not improve this, as the paint passed through the meshes and only adhered fast to the wire in patches. Tepper set to work, and has now succeeded in making a paste or composition which adheres quite tenaciously to the wires, stops up the pores, and which neither cracks nor peels off, and forms a flexible grounding upon which the painting can be carried out. After this paste was invented it became possible to employ this wire gauze for stage scenery, and in a very few weeks the first practical trials of it on a large scale will be made at the Court Theatre, Munich. Scene painters at Berlin are already in treaty with Tepper, and if the Munich trial turns out satisfactorily, all the German theatres will soon be supplied with the new material for their scenes, as it is only slightly heavier and a little dearer than that now in use. If this idea were taken up in England, and machinery were employed to make it, like that for diacylon plaster, soon a beautiful fabric would be the result, and perhaps a good business as well. Add to this thin tubular frames, and a perfect fireproof scene could be had.—*The Engineer.*

Oxton-road Congregational Church, Birkenhead.—The tower which is being added to Oxton-road Congregational Church, Birkenhead, is now rapidly approaching completion, the top stone of the edifice having been laid a few days ago by the pastor of the church, the Rev. J. G. Deaville. The church itself was erected about thirty years ago, and at that time it was intended to have a tower, but that part of the work was left unfinished. The tower occupies a commanding position at the north-east angle of the church, at the junction of Balls-road and Woodchurch-road. It is about 120 ft. high. New school accommodation has been obtained by the erection of a single-story building at the rear of the church. It consists of a large class-room for infants, five class-rooms for senior scholars, secretary and librarian's room, minister's vestry, church parlour, &c. The design of the schools, which will be opened in a few weeks, is in keeping with the architecture of the church buildings. Mr. Thomas W. Cubbon, architect, Birkenhead, has superintended the erection both of the tower and schools, at a cost of about 2,500*l.*, Messrs. Sinclair Bros., of Bootle, being the contractors.

Cleckheaton.—The parish church of Cleckheaton has just received a two-light Munich window from the studios of Messrs. Mayer & Co. It has been erected by Mr. W. Muschamp in memory of his parents and wife. In the left-hand light is a figure of the Good Shepherd, and in the right is seen Jesus in the house of Martha and Mary.

Lewisham.—A stained-glass window has recently been placed in Lewisham Parish Church illustrating the subjects of Faith, Hope, and Charity. The work was designed and executed by Messrs. Warrington & Co., of Fitzroy-square.

The "Clamond" Incandescent Gas-Light Company.—The prospectus of this company will be found in our advertising columns. We shall probably have something to say about the light in a future issue. In the meantime we may say that the company has been formed for the purpose of acquiring the patents and patent rights granted to M. Clamond for the United Kingdom, together with a contract entered into by the vendors for the sale, in the United Kingdom alone, of a minimum of 100,000 burners per annum, the due fulfilment of which contract is stated to be guaranteed by a responsible guarantee, under a heavy penalty. The company also acquires the right to take out patents, for all British possessions, for gas-lighting by incandescence, invented and patented by M. Clamond, of Paris, the well-known gas and electric engineer. The merits of the invention have been favourably reported upon by Professor Foster, Mr. C. Heisch, and Mr. Lewis T. Wright.

Proposed Restoration of Manchester Cathedral.—A meeting in connexion with the Cathedral Restoration Fund was held on Monday afternoon in the Cathedral Library. The Bishop presided, and there were present Lord Egerton, the Dean of Manchester, Mr. Oliver Heywood, Mr. J. Allen, Canon Woodhouse, Canon Kelly, Mr. G. Milner, Mr. J. W. Maclure, M.P., and Mr. Bowring, churchwardens; Minor Canon Elvy, Colonel Clarke, Mr. W. E. Bramall, Mr. G. W. Blathwayt, and Mr. T. Craven, sidesmen; Mr. F. Birley, Mr. G. P. Allen, Mr. R. T. Hadow, Mr. Crowther, and Mr. Oakley, jun. The following resolution was proposed by Mr. Oliver Heywood, seconded by Mr. J. Allen, and carried:—"That the Dean and Churchwardens be requested to issue an appeal for the sum of 10,000*l.*, still required to carry out the alterations undertaken in 1883." It was arranged that a public meeting should be held at as early a date as possible in the Town-hall in support of the appeal.

PRICES CURRENT OF MATERIALS.

TIMBER.	£. s. d.	£. s. d.
Greenheart, B.G. ....ton	6 10 0	7 15 0
Teak, E.I. ....load	8 0 0	12 10 0
Sequoia, U.S. ....foot cube	0 2 3	0 3 0
Ash, Canada ....load	3 0 0	4 10 0
Birch ,, ...load	2 0 0	3 10 0
Elm ,, ...load	3 10 0	4 10 0
Fir, Dantsic, &c. ....load	1 10 0	4 0 0
Oak ,, ...load	2 10 0	4 10 0
Canada ....load	3 0 0	6 0 0
Pine, Canada red ....load	2 0 0	3 10 0
,, yellow ....load	2 0 0	4 0 0
Lath, Dantsic ....fathom	3 0 0	5 0 0
St. Petersburg ....load	4 0 0	5 10 0

TIMBER (*continued*).	£. s. d.	£. s. d.
Wainscot, Riga ....log	0 0 0	0 0 0
,, Odessa, crown ....load	2 10 0	3 0 0
Deals, Finland, 2nd and 1st...std.100	7 10 0	9 0 0
,, 4th and 3rd ....load	6 0 0	8 0 0
Riga ....load	5 10 0	7 10 0
St. Petersburg, 1st yellow ....load	8 10 0	14 0 0
,, 2nd ,, ...load	7 0 0	8 0 0
,, white ....load	6 10 0	8 10 0
Swedish ....load	6 15 0	15 0 0
White Sea ....load	7 0 0	16 10 0
Canada, Pine, 1st ....load	16 0 0	24 0 0
,, ,, 2nd ....load	10 0 0	15 10 0
,, ,, 3rd, &c. ....load	7 0 0	9 10 0
,, Spruce, 1st ....load	8 0 0	9 10 0
,, ,, 3rd and 2nd ....load	5 0 0	7 0 0
New Brunswick, &c. ....load	5 0 0	7 0 0
Battens, all kinds ....load	4 0 0	10 10 0
Flooring Boards, sq., 1 in., prepared, First ....sq.	0 8 0	0 11 6
Second ....sq.	0 6 6	0 7 6
Other qualities ....sq.	0 4 0	0 6 0
Cedar, Cuba ....foot	0 0 3½	0 0 3½
Honduras, &c. ....foot	0 0 3	0 0 3½
Australian ....foot	0 0 2	0 0 3
Mahogany, Cuba ....foot	0 0 4½	0 0 7
St. Domingo, cargo average ....foot	0 0 4½	0 0 6
Mexican ,, ...foot	0 0 3½	0 0 3½
Tobasco ,, ...foot	0 0 4	0 0 5
Honduras ,, ...foot	0 0 4	0 0 5
Maple, Bird's-eye ....foot	0 0 5	0 0 7
Rose, Rio ....ton	8 0 0	11 0 0
Bahia ....ton	7 0 0	9 0 0
Box, Turkey ....ton	5 0 0	12 0 0
Satin, St. Domingo ....foot	0 0 5	0 0 9
Porto Rico ....foot	0 0 6	0 0 10
Walnut, Italian ....foot	0 0 4	0 0 5½

METALS.		
IRON—Bar, Welsh, in London...ton	0 0 0	0 0 0
,, ,, in Wales ....ton	0 0 0	0 0 0
,, Staffordshire, London ....ton	0 0 0	0 0 0
COPPER—		
British, cake and ingot ....ton	78 0 0	79 0 0
Best selected ....ton	79 0 0	80 0 0
Sheets, strong ....ton	90 0 0	0 0 0
Chili, bars ....ton	78 15 0	0 0 0
YELLOW METAL ....lb.	0 0 7½	0 0 8
LEAD—		
Pig, Spanish ....ton	14 7 6	0 0 0
English, common brands ....ton	14 10 0	14 15 0
Sheet, English ....ton	15 12 6	15 17 6
SPELTER—		
Silesian, special ....ton	20 10 0	21 0 0
Ordinary brands ....ton	20 5 0	20 10 0
TIN—		
Straits ....ton	170 10 0	0 0 0
Australian ....ton	170 10 0	0 0 0
English ingots ....ton	165 0 0	0 0 0

OILS.		
Linseed ....ton	19 0 0	19 5 0
Cocoanut, Cochin ....ton	28 0 0	29 0 0
Ceylon ....ton	24 10 0	0 0 0
Palm, Lagos ....ton	22 0 0	0 0 0
Rapeseed, English pale ....ton	25 15 0	26 0 0
,, brown ....ton	24 5 0	24 10 0
Cottonseed, refined ....ton	20 5 0	0 0 0
Tallow and Oleine ....ton	25 0 0	45 0 0
Lubricating, U.S. ....barrel	5 0 0	6 0 0
,, refined ....barrel	5 0 0	12 0 0
TURPENTINE—		
American, in casks ....cwt.	1 9 6	0 0 0
TAR—		
Stockholm ....barrel	0 15 0	0 15 6
Archangel ....barrel	0 10 0	0 10 6

COMPETITIONS, CONTRACTS, & PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

COMPETITIONS.

Nature of Work.	By whom required.	Premium.	Designs to be delivered.	Page.
Designs and Estimates for Granite Column ...	Armada Memorial Com.	Nil.	Feb. 11th	ii.
Public Offices ...	Swindon (N.T.) Local Bd	Not stated ...	March 20th	ii.
Sewage Treatment Scheme ...	Rawtenstall, &c., L. Bds	do.	Not stated ...	xi.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Works and Materials ...	Chelsea Vestry ...	G. R. Strachan ...	Feb. 7th	ii.
Materials, Jobbing Works, & Street Watering	Strand Board of Works	*Official* ...	Feb. 8th	ii.
Fire-Extinguishing Apparatus ...	Wandsworth, &c., Un.	T. W. Aldwinckle ...	Feb. 9th	ii.
Broken Flints ...	Kingston-on-Thms. Cor.	*Official* ...	Feb. 13th	xi.
Works and Materials ...	Willesden Local Board	O. Claude Robson ...	Feb. 14th	xi.
Sewerage Works ...	Edmonton Local Board	G. E. Eachus ...	do.	ii.
Works and Materials ...	Kingston Highway Brd.	A. J. Henderson ...	Feb. 15th	xi.
Iron Railings and Gates to Baths and Washhouses ...	St. Mary Abbott's (Kensington) Vestry	*Official* ...	Feb. 16th	xi.
Repairs to Tar Paving, Hornsey ...	Met. Board of Works...	do.	Feb 21st	ii.
Gas Fitters' Work ...	Com. of H.M. Works...	do.	Feb. 22nd	ii.
Stoneware Sewer-Pipes and Gully Traps ...	Bath U. S. A. ...	C. R. Fortune ...	March 5th	ii.
Dressing-Room, Tufnell Park Grounds ...	The Committee ...	...	Not stated...	ii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page
Surveyor ...	Accrington Corporation	200*l.* ...	Feb. 8th	xvi.
District Surveyor, E. Hampstead ...	Met. Board of Works...	Not stated ...	do.	xvi.
Borough Engineer and Surveyor ...	Dover Town Council ...	300*l.*, &c. ...	Feb. 13th	ii.

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *Noon on Thursdays.*]

BATTERSEA.—For repairs, &c., to premises, Lombard-road, for Messrs. Kingsford, Field, & Co. Mr. T. Woodbridge Biggs, surveyor, &c.

M. R. Rice (too late) ...	£400 0 0
Ball & Co. ...	311 17 0
Holliday & Greenwood ...	239 0 0
Leslie & Knight (accepted) ...	189 15 0

BELLAGGIO (Surrey).—For the erection of lodges and gates to entrances to the estate at Bellaggio, near East Grinstead, Surrey, for the Bellagio Company, Mr. Walter J. Ebbetts, architect, 115, Strand, W.C.:—

H. Baylis, Highbury (accepted) ... £190 each.

BELLAGGIO (Surrey).—For the erection of bungalows at Bellaggio, near East Grinstead, Surrey, for the Bellaggio Company and others. Mr. Walter J. Ebbetts, architect:—

No. 8 Bungalow ...	£335 0 0
No. 9 Bungalow ...	250 0 0
No. 10 Bungalow ...	400 0 0
No. 11 Bungalow ...	335 0 0
No. 11A Bungalow ...	320 0 0
No. 12 Bungalow ...	320 0 0
No. 12A Bungalow ...	350 0 0
No. 13 Bungalow ...	295 0 0
No. 14 Bungalow ...	335 0 0

[The foregoing are the lowest tenders, and were submitted by Mr. Henry Baylis, of Highbury.]

BROADSTAIRS.—For additions and alterations in connexion with Holy Trinity Church schools, Broadstairs. Messrs. Elgar, Langham, & Cole, architects and surveyors, Ramsgate. Quantities supplied:—

Blackburn ...	£1,176 12 9
White ...	925 10 0
May (accepted)* ...	886 0 0

[Architect's estimate, £897.]

* Subject to certain deductions.

CANNOCK.—For new stabling and additions to laundry at the Union Workhouse, Cannock. Mr. J. R. Veall, architect, Wolverhampton:—

Henry Gough, Wolverhampton* ... £277 0 0

* Accepted.

[Eleven other tenders received, the highest being 343*l.*]

CARDIFF.—For alterations and additions to shop, Clifton-street, for Mr. Thomas Morgan. Mr. John H. Phillips, architect, Cardiff. Quantities by Mr. F. Baldwin, Cardiff:—

W. Francis ...	£1,173 11 0
F. Small ...	1,060 0 0
D. Thomas ...	999 19 0
D. Davies ...	989 0 0
T. Evans ...	960 0 0
T. Gough ...	920 0 0
G. Smallridge ...	914 0 0
H. J. Ransom (accepted) ...	893 14 0

CHESHAM.—For new butcher's shop and alterations to premises, High-street, Chesham, for Mr. Jas. Mayo, butcher, Blucher-street, Chesham. Mr. Geo. H. Green, architect:—

Robt. Darvell, Chesham ...	£235 0 0
T. Rance & Sons, Chesham ...	217 9 0
F. Darvell, Jun., Chesham ...	212 0 0
A. Mead, Chesham (accepted) ...	190 0 0

FENNY STRATFORD.—For alterations, additions, and repairs to the National Schools at Fenny Stratford, for the School Board. Mr. Frederick Gotto, Leighton Buzzard, architect:—

A. Miles, Heath, Leighton Buzzard ...	£439 10 0
E. George, Woburn Sands ...	425 10 0
T. Page, Banbury ...	423 0 0
H. Edwards, Eggington ...	405 0 0
J. F. Warren, Fenny Stratford ...	363 0 0
G. Garside, Leighton Buzzard ...	352 0 0
David Cook, Leighton Buzzard ...	317 10 0
H. W. Welsh, Fenny Stratford ...	345 0 0
Tutt Bros., Leighton Buzzard* ...	323 0 0

* Accepted.

HAMMERSMITH.—For alterations and repairs to the Princess Alexandra public-house, Church-road, Hammersmith, for Mr. C. A. Nicols. Mr. J. G. Needham, architect:—

W. Taylor & Co. ...	£285 0 0
John Walker ...	226 0 0
J. & F. Barre (accepted) ...	169 10 0
Pewterer's Work.	
Phillips ...	50 0 0
Warren (accepted) ...	45 0 0

HAMPTON WICK.—For the erection of house in High-street, Hampton Wick, on the site of York Cottage, for Bray, Young, & Co. Plans and specification by Messrs. Bray, Young, & Co., Warwick-court, High Holborn:—

		A.*
P. Peddle ...	£886 10 0	—
G. Constable, Hampton Wick ...	454 0 0	£382 0 0
W. Harris ...	349 0 0	378 0 0

* Amended tenders, omitting cellars and all underground work.

LLANFIHANGEL, TALYLLYN (Brecon).—For reseating, &c., of chapel. Mr. John H. Phillips, architect, Cardiff:—

B. Jenkins, Brecon ...	£160 0 0
Pritchard, Llangorse ...	158 0 0
Williams, Trefeinon ...	150 0 0
Wm. Jones, Talgarth (accepted) ...	140 0 0

LONDON.—For various alterations and additions at No. 25A, Earl's Court-gardens. Messrs. Morley & Letts, architects, 185, Earls Court-road, S.W.:—

Walter Nash, Kensington ...	£1,195 0 0
C. F. Kearley, Kensington ...	1,039 0 0
Toten & Sons, South Kensington ...	1,030 0 0
W. H. Smith & Son, Walham Green	1,028 0 0
H. Smith & Son, Wetherby-terrace, Earls Court (accepted) ...	953 0 0

LONDON.—For alterations, &c., at 7, Golden-square W. Mr. W. F. Towell, architect:—

Bywaters ...	£545 0 0
Keyes, Head, & Co. ...	472 0 0
Wood ...	433 0 0

LONDON.—For alterations and decorations at the Turk's Head Hotel, East-street, W.C., for the proprietor, Mr. Charles Brown. Mr. James R. Morgan, architect, 59, Chancery-lane :—

Gladding	£380	19	0
Langmead & Way	337	0	0
Yardley & Son	317	0	0
Barrett & Power (accepted)	284	0	0
Ogden	272	0	0

[Architect's estimate, 300*l.*]

LONDON.—For building conservatory in rear of 240, Romford-road, Forest Gate, Essex. Mr. J. G. Needham, architect :—

John Walker	£203	0	0

[No competition.]

ORPINGTON (Kent.).—For additions and alterations to shop, for Mr. J. Edmed. Mr. St. Pierre Harris, A.R.I.B.A., architect and surveyor, 1, Basinghall-street :—

Hewett	£415	0	0
Somerford & Son	398	0	0
Laslett	364	0	0
Knight	353	0	0
Owen	325	0	0
Wood	317	0	0
Bowers	315	0	0
Treadwell (accepted)	297	0	0

RAMSGATE.—For alterations and new front to Toy Boat Hotel, Ramsgate. Messrs. Elgar, Langham, & Cole, architects and surveyors, Ramsgate and Hastings :—

Martin (accepted)	£133	0	0

RICHMOND.—For making up the Larkfield roads. Mr. Walter Brooke, Assoc. M. Inst. C.E., Town Surveyor :—

S. Atkins, Kingston-on-Thames (too late)	—		
G. Alldred, Strand-on-the-Green, Chiswick	£1,949	19	0
J. Bloomfield, Tottenham	1,891	0	0
L. Bottoms, Wandsworth	2,750	0	0
C. Dickenson, Loughborough Junction	2,199	0	0
J. & S. Gabriel, Waterloo Bridge	2,075	0	0
E. & W. Iles, Wimbledon	2,200	0	0
Kavanagh, Surbiton	2,035	0	0
C. Killingback, Camden Town	2,535	0	0
J. G. B. Marshall, Brighton	1,936	0	0
J. Munro, Richmond, Surrey	2,015	0	0
Mowlem & Co., Westminster	2,371	0	0
G. Neal & Co., Wandsworth	2,118	0	0
Nowell & Robson, Kensington*	1,885	0	0
J. C. Truman, Hackney	2,345	0	0

[Surveyor's approximate estimate, 1,792*l.*; amended surveyor's estimate on tender, 1,975*l.*]

* Accepted

RICHMOND.—For making up Halford-road. Mr. Walter Brooke, Assoc. M. Inst. C.E., town surveyor :—

E. Peill & Sons, Bromley Common	£955	0	0
S. Atkins & Son, Kingston-on-Thames	900	0	0
J. G. B. Marshall, Brighton	890	0	0
G. Neal & Co., Wandsworth	882	0	0
E. & W. Iles, Wimbledon	880	0	0
J. Mowlem & Co., Millbank	856	0	0
J. Munro & Son, Richmond, Surrey	843	14	2
Kavanagh, Surbiton	840	0	0
Nowell & Robson, Kensington	779	0	0
J. Bloomfield, Tottenham (accepted)	770	12	0

[Surveyor's estimate, 846*l.*]

SOUTHEND.—For building cottage residence, for Mr. H. Wood. Mr. Geo. Sherrin, architect. :—

J. Chapman, Hackney	£640	0	0

[No competition.]

WATFORD.—For the erection of a Wesleyan church. Mr. Robt. Curwen, A.R.I.B.A., 168 and 169, Palmerston-buildings, Old Broad-street, E.C. Quantities by Mr. J. S. Alder, 156, Palmerston-buildings, E.C. :—

J. A. Hunt, Hoddesdon	£7,997	0	0
C. Miskin, St. Albans	7,875	0	0
Andrews & Sons, Watford	7,695	0	0
E. Abley & Co., Salisbury	7,537	0	0
Ellwood & Son, Sandy	7,440	0	0
Staines & Son, London	7,284	0	0
G. Cooper & Co., Aylesbury	7,157	0	0
Howell & Son, Lambeth	7,047	0	0
Judge & Eames, Watford	6,995	0	0
D. Brown & Co., Camberwell	6,990	0	0
G. & J. Waterman, Watford	6,987	0	0
John J. Robson, Snaresbrook	6,980	0	0
J. T. Chappell, Pimlico	6,787	0	0
T. Page, Banbury	6,700	0	0
Clifford & Gough, Watford	6,660	0	0
Bunning & Son, Camberwell	6,500	0	0
Barrett & Power, Hackney	6,472	0	0
E. Jarvis, Banbury*	6,330	0	0

* Accepted conditionally.

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